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A Revision of the Bee Genus *Doeringiella* (Hymenoptera, Anthophoridae, Nomadinae)¹

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ABSTRACT

This is a revision of the genus of cleptoparasitic bees *Doeringiella* Holmberg. These bees occur in southern South America, with maximal diversity in the xeric regions of northwestern and west-central Argentina. Thirty-one species are recognized, sixteen of which are described as new. The previous subgeneric classification is abandoned; one of the two subgenera has no basis for being maintained and the other is synonymized with *Pseudepeolus*, which is recognized as the sister group of *Doeringiella*. A phylogenetic analysis uses *Pseudepeolus* and *Triepeolus* as the closest outgroups. A key to the species, descriptions and illustrations are provided.

INTRODUCTION

Doeringiella is a genus of cleptoparasitic bees of the tribe Epeolini. It is South American with species distributed in Argentina, Chile, Bolivia, Perú, Paraguay, Uruguay and southeastern Brazil. The highest diversity is found in the xerophytic region of northwestern and west-central Argentina, where 24 species occur.

This genus has been noted by melittologists since its very first description for the conspicuously swollen scapes of some males. Aside from this character it looks very much like the more widespread *Triepeolus*, to which it is closely related.

Some early authors such as Friese, Brèthes, Jörgensen and Schrottky did not accept Holmberg's genus and treated its species as belonging to *Epeolus*, a extreme view that has been recently revived by

Warncke (1982). *Doeringiella* differs from *Epeolus* in important characters of male genitalia and female apical sterna. *Doeringiella* was recognized by Cockerell (1917, 1922), Michener (1944) and Moure (1954). The number of epeoline genera that should be recognized is not considered here; I have followed the generic arrangement proposed by Moure in his characterization of South American Epeolini. He pointed out some useful characters to distinguish *Doeringiella* from *Triepeolus*: *Doeringiella* has supra-antennal areas depressed, pedicel fully exposed, two maxillary palpal segments and vestigial basitibial plates present in both sexes. The male genitalia and the female apical sterna indicate the close relationship of these two genera and *Pseudepeolus*.

Moure (1954) divided *Doeringiella* into the nominal subgenus and two new subgenera, *Orfilana* and *Stenohisa*. *Doeringiella* proper was

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characterized by males with swollen scapes and females with the pseudopygidial area reduced, *Orfilana* by males with normal scapes and females with pseudopygidial area conspicuous. As will be shown below, especially in the phylogenetic analysis, this set of characters does not hold; only a subset of the species with swollen male scape has reduction of the female pseudopygidial area; furthermore a swollen scape seems to have evolved twice. Therefore *Orfilana* is not recognized as different from *Doeringiella* sensu stricto. *Stenohisa* is a junior synonym of *Pseudepeolus* Holmberg (new synonymy). It is a distinctive group, and I consider that it merits as much recognition as *Doeringiella* and *Triepeolus*; its species are not included in the present revision.

Some taxa have been misplaced in *Doeringiella*. The genus was misunderstood by Friese (1908), who used the name to describe several species currently in *Brachynomada*. Holmberg described 5 species in *Doeringiella*, of which 3 are recognized in this revision. *D. nemoralis* should be called *Triepeolus nemoralis* (Holmberg) (new combination), and *D. silvatica* does not correspond to any specimens I have studied (see comments under *holmbergi*). *D. angustata* should be called *Pseudepeolus angustatus* Moure (new combination).

The only certain information on the biology of *Doeringiella* comes from the observations of Claude-Joseph (1926) on *gayi* and its host *Svastrides melanura*. He described and figured the larva. Michener (1953), based on that description, mentioned the similarity of the larva of *gayi* to larvae of Nearctic species of *Triepeolus*. Claude-Joseph (1926) also observed *gigas* entering nests of *Caupolicana gayi*. Other hints on the host relations of *Doeringiella* are indirect, and suggest anthophorid hosts. Holmberg (1886a) observed that *bizonata* was abundant in places where *Svastra bombylans* was also common. This observation is coincident with the large series of both species collected in the same places and times that are preserved in the Snow Entomological Museum, University of Kansas, Lawrence. In the same paragraph Holmberg mentions *holmbergi* (as *variegata*) approaching the nest of an unidentified anthophorid. Jensen-Haarup (1908) and Jörgensen (1909, 1912a) reported *burneisteri* flying over ag-

gregations of *Melissoptila dama*, and Jörgensen (1912b) recorded *Diadasia pereyrae* as another suspected host.

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MATERIAL AND METHODS

The morphological terminology of Michener (1944, 1965) has been followed, except that metapostnotum is used instead of propodeal triangle (Brothers, 1976), and the term *plical surface* is used for a more accurate description of the scape (see character m below). The upper interocular distance has been measured along the lower tangent of the anterior ocellus. In the keys I have made extensive use of color and vestiture; these features are notably constant within most species. In the descriptions the metasomal terga (T) and sterna (S) are identified with Arabic numerals. Under Material Studied, females and males are indicated by F and M respectively.

For easy comparison characters have been grouped and lettered in the descriptions. Characters a, b, c, d, e, j, k, l, n, o and s are applicable to both sexes, but will be found under the female description unless this sex is unknown. When only males were available for description, charac-

ters that refer to the female (f, g, h, i, m, p, q, r) are omitted. Some letters denote characters present in a few taxa and will be found only when pertinent. The following is a comprehensive list of characters utilized:

- (a) Coloration of integument and wings.
 (b) Vestiture. Color, length and density of body hairs, except those of maculations.
 (c) Maculations. Many epeolines have characteristic patches of pale, dense, appressed hairs; distribution of the patches is more or less constant within a genus. The names applied to these maculations can be seen in figure 12 (shaded areas). Bands and spots can vary in extent, shape and coloration.
 (d) Punctuation. Measurement of punctures was on the middle part of the mesepisternum, below the mesepisternal band of hairs, or equivalent position when the band is absent. Punctuation of other parts of the body is indicated by comparison to this sector.
 (e) Metapostnotum and propodeum. The posterior face of the propodeum that surrounds the triangular metapostnotum is diagnostic, varying in the extent of punctured areas and the kind of hairs.
 (f, u) Head measurements of female and male, respectively. Two proportions are useful for description of head shape: proportion of lower interocular distance (LID) to upper interocular distance (UID) and proportion of antennocular distance (AOD) to interantennal distance (IAD).
 (g) Supra-antennal, paraocular and ocellular areas in the female. Degree of depression.
 (h) Frontal carina. Extent and conformation.
 (i) Paraocular carina. Extent.
 (j) Preoccipital carina. The genal and upper sectors of the carina are united at an angle, characteristic of the genus (fig. 13); the upper sector may be weak or may disappear near the angle.
 (k) Supraclypeal area. Usually swollen, forming the transition between the frontal carina and the clypeus, but in a few cases flat or depressed.
 (l) Labrum. Proportions and sculpture.
 (m, v) Antenna of female and male, respectively. Relative lengths of scape, upper interocular distance (UID) and the two first flagellomeres are given. Scape length does not include the basal bulb; flagellomeres were measured on the shortest side. Description of scape. As the antenna rotates when it is extended, it is confusing to speak about upper and lower or inner and outer sides. The antennal surface that is held against the face when the antenna is directed backwards becomes the outer surface when the antenna is directed forwards; this is easily seen by the position of the cavity in the swollen scape of some males. To avoid this problem the surface of the scape toward which the flagellum is flexed is called the plical surface (fig. 14). The plane in which the flagellum moves is perpendicular to the plane formed by two points on the upper rim of the scape: the monocondylic articulation between scape and pedicel and a conspicuous notch just opposite it.

- (n) Shape of scutellum and axilla.
 (o) Spiracular carina, conformation. This is an arched carina above the propodeal spiracle; sometimes it is continued along the posterolateral angle of the propodeum.
 (p) Sternum 5 of female, shape.
 (q) Tergum 5, of female, pseudopygidial area and basal patch of hairs.
 (r, x) Middle and hind legs of female and male, respectively.
 (s) Wing venation. The length of vein r is compared to the basal width of the second submarginal cell.
 (t) This letter is used to indicate color and vestiture of male when they differ from those of the female.
 (w) Sternum 5 of male, fringe of hairs.
 (y) Penis.

CLADISTIC ANALYSIS

The analysis of polarity of characters is based on a preliminary study of the generic classification of the Epeolini. *Doeringiella* and *Pseudepeolus* together are considered the sister group of *Tripeolus*. *Thalestria* and *Rhinepeolus* are considered more closely related to those three genera than to other Epeolini. This working hypothesis has allowed the polarization of 24 characters within *Doeringiella* (Table 1). In this list general statements about the outgroups refer to all the tribe Epeolini except *Doeringiella*.

Most of the characters listed by Moure to define *Doeringiella* are symplesiomorphies, with exception of the strong frontal carina and depressed supra-antennal areas. The following is a list of the synapomorphies that support the genus. Some do not hold in the whole group and are thought to have reverted. 1-Articulating surfaces of penis and penis valves recurved (fig. 59). 2-Preoccipital carina forming a conspicuous angle near upper corners of head (fig. 13); only one species (*chacoensis*) nearly lacks the angle. 3-Scape of both sexes (except those males with swollen scape) with a sub-basal angle (fig. 14); only one species (*joergenseni*) has reverted in this feature. 4-Middle femur of males with long hairs on underside; exception is *chacoensis*. 5-Metapostnotum almost bare, a few hairs restricted to upper corners; exceptions are *guttata* and *oblata*, which have evenly distributed hairs. Some other characters not found outside *Doeringiella* are present in some of the species; striking characters of this type are the swollen scape of some males (figs. 45-55) and the basal patch of hairs on T5 of the female (fig. 4). Other such characters are the depressed supra-antennal areas and the distribution of hairs on the lateroventral surface of the gonostylus, leaving a bare patch (figs. 65-68, 71)

(the plesiomorphic condition is even distribution of hairs).

The cladograms (fig. 1) were prepared with the help of the computer program PAUP (Swofford, 1985). Some species are known from one sex only, so their positions in the cladogram are tentative; they are indicated with dashed lines. PAUP produced several equally parsimonious trees. The minimum tree length obtained with data detailed in table 2 was 55 steps.

The position of *holmbergi* and the structure of branch C remain invariant through all the analyses (fig. 1a). Branch B is also almost invariant, with the exception, explained below, of *pilicornis* and *speciosa*. Major differences are due to the position of the *simplicicornis-similaris* branch that appears alternatively as the sister group of branch AB, of B or of A (figs. 1a, 1b, 1c). These two species are similar in genitalic structure to the species in a basal group in branch A, especially

Table 1. List of apomorphous characters

1. Scape of female with sub-basal angle on plical surface (figs. 14, 22a, 23a) (1). Sub-basal angle absent in outgroups; absent also in *joergenseni*.
2. Scape of female with longitudinal keel delimiting plical surface on one side (fig. 14) (1). No such keel in outgroups.
3. Apical third of female scape with plical surface concave (1). Apical third round or oval in cross-section in outgroups. In some *Pseudepeolus* the scape is flattened, but in a different plane.
4. Scape of male swollen (1). No such scape in outgroups.
5. Scape of male with open cavity (fig. 51) (1). With cavity wider than entrance hole (fig. 46) (2). No cavity in outgroups.
6. Scape of male with long, erect hairs on plical surface (1). Hairs short and appressed in *Pseudepeolus* and usually so in *Triepeolus*. The presence of such a bunch of hairs is particularly conspicuous in those species with short, appressed body vestiture, but in some species with long, erect body vestiture (*angulicornis*, *gayi*, *tricolor*) the homology is not clear.
7. Dorsal edges of penis not sclerotized on basal 0.15-0.30, lateral view as in figures 58, 60 (1). Not sclerotized on basal 0.40-0.65, lateral view as in figures 61-63 (2). In outgroups dorsal edges of penis continuously sclerotized from base towards apex. The plesiomorphic condition is present in *holmbergi* and the *bizonata* group (figs. 56-57).
8. Dorsal edges of penis each with lamella present, as in figure 61 (1). This lamella placed towards apex of nonsclerotized portion, as in figure 62 (2). Lamella forming projection, as in figure 63 (3). Lamella absent in outgroups.
9. Dorsal edges of penis converging medially, as in figures 58-63 (1). Dorsal edges separated in outgroups; condition also present in *holmbergi* and *bizonata* group (figs. 56-57).
10. Articulating surfaces of penis and penis valves (fig. 59) recurved and perpendicular to longitudinal axis of penis (1). Such recurved surfaces oblique to longitudinal axis (2). *Pseudepeolus* and *Triepeolus* have articulating surfaces not recurved, and line of articulation perpendicular to longitudinal axis.
11. Penis valve as in figure 72 (1). Penis valve as in figures 73-75 is closer to shape found in *Pseudepeolus* and *Triepeolus*.
12. Volsella reduced, membranous, not hairy (1). Presence of volsella is considered plesiomorphic. Most species of *Doeringiella* have a conspicuous, hairy volsella.
13. S8 of male as in figure 64b (1). This shape of sternum is not found outside group of *arechavaletai*, *paranensis*, *gigas* and *cochabambina*.
14. Sternum 5 of female bent down apically, usually more or less flattened preapically and bent up in sharp angle laterally (1). S5 not bent down apically in *Pseudepeolus* and most *Triepeolus*. Species of *Triepeolus* with S5 convergently bent down apically can be considered derived on the basis of other features.
15. S5 narrowed apically, as in figure 44 (1). Synapomorphy for *hebes* and *centuncula*.
16. Pseudopygidial area reduced to ill-defined apical band, length 0.2-0.4 times apical width (1). Pseudopygidial area well developed in outgroups.
17. Pseudopygidial area with slender hairs (fig. 4) (1). Pseudopygidial hairs variously modified in *Triepeolus*, but a pseudopygidial area with stiff hairs as in figures 2-3 is basic for *Doeringiella*, *Pseudepeolus* and *Triepeolus*, although derived relative to other bees.
18. T5 of female with hairs densest on basal central area (1). Hairs on basal central area forming a definite patch (fig. 4) (2). T5 with hairs not differentiated in outgroups.
19. Supraspiracular carina reduced (1). Such carina well developed in *Pseudepeolus* and *Triepeolus*.
20. Hairs on metapostnotum restricted to upper corners or absent (1). Hairs more evenly distributed on metapostnotum in *Pseudepeolus* and usually in *Triepeolus*.
21. Preoccipital carina well marked, continuous (1). Preoccipital carina absent near upper corners of head in *Pseudepeolus* and *Triepeolus*.
22. Upper sector of preoccipital carina absent (1). Plesiomorphic condition as in 21.
23. Middle femur of male with long hairs on underside (1). Short, appressed hairs in *Pseudepeolus*, *Triepeolus* and *D. chacoensis*.
24. Axilla projected as strong tooth, as in figures 27, 30, 31, 35 (1). Such strong tooth not found outside *bizonata* group of *Doeringiella* and in *Pseudepeolus*; variable in *Triepeolus*.

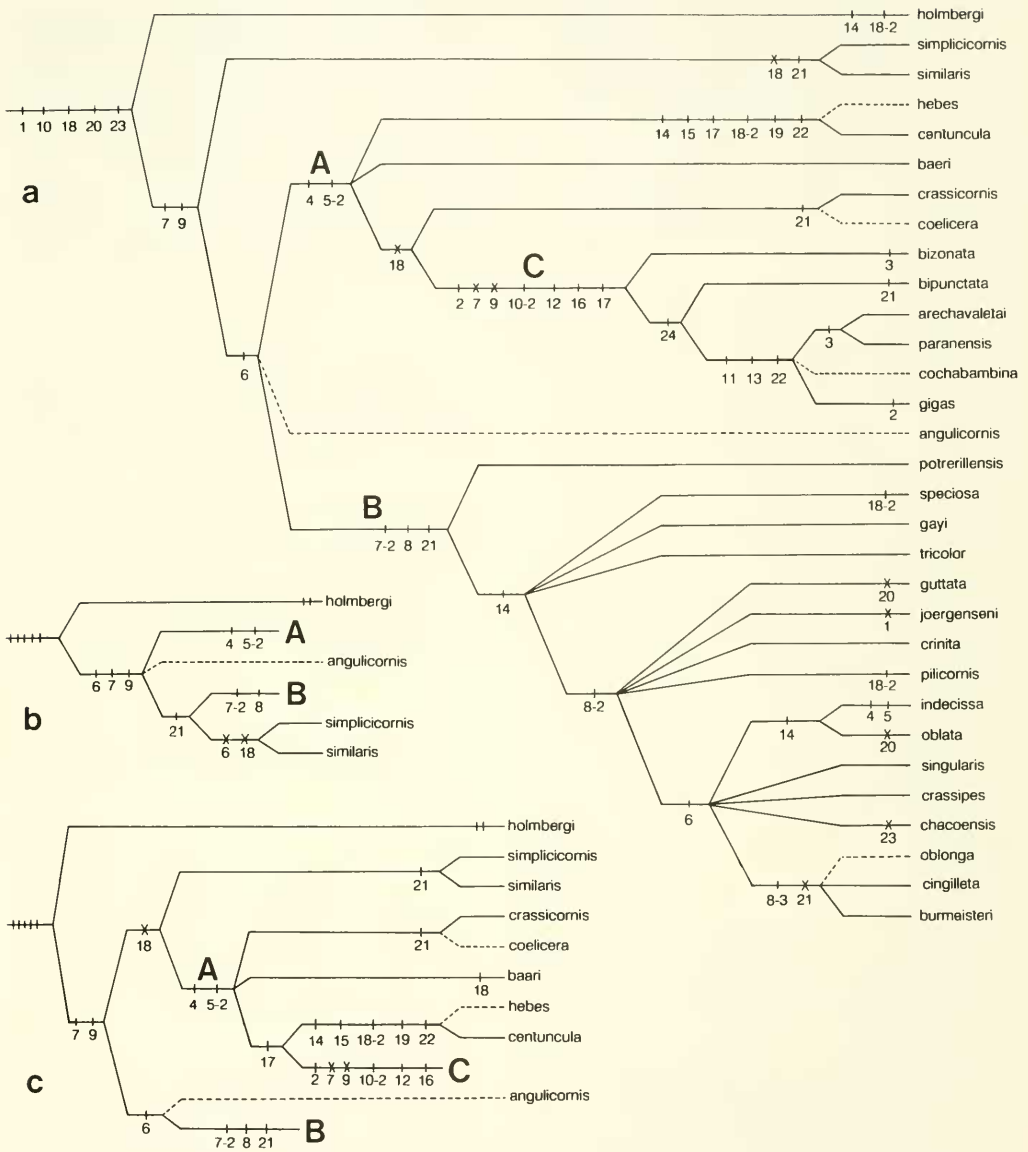


FIG. 1. Cladograms showing the interrelationships of the species of *Doeringiella*. Dashed lines indicate species with only one sex known. Bars indicate apomorphies, crosses indicate reversals. Characters are numbered according to Table 1 and are all synapomorphies at least somewhere in the genus. Autapomorphies are omitted. a shows all species, b and c are alternatively equally parsimonious topologies for the basal part of the cladogram.

crassicornis. It is interesting to note that the pair *simplicicornis-similaris* and *holmbergi* have the female scape flattened on the plical surface, a character usually present in species whose males have swollen scapes; this character has not been coded due to presence of intermediate states both in branch A and in B. *D. angulicornis* changes in position with that of the previous two taxa. It has

a unique scape (fig. 24); the genitalia suggest *baeri*, a species that it strikingly resembles in coloration. The discovery of the female of *angulicornis* will help to clarify its position.

The basal position of *holmbergi* as sister species of all other taxa seems reasonable since its genitalia are clearly plesiomorphic, closely approaching those of *Triepeolus* and *Pseudepeolus*.

Table 2. Data matrix for *Doeringiella* species. Characters and codes are indicated in Table 1. The hypothetical ancestor is plesiomorphic in all characters. 9 represents missing data.

Character	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	1	2	2	2	2	2	
	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4
Ancestor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
bizonata	1	1	1	1	2	9	0	0	0	2	0	1	0	0	0	1	1	0	0	1	0	0	1	0
arechavaletai	1	1	1	1	2	9	0	0	0	2	1	1	1	0	0	1	1	0	0	1	0	1	1	1
paranensis	1	1	1	1	2	9	0	0	0	2	1	1	1	0	0	1	1	0	0	1	0	1	1	1
bipunctata	1	1	0	1	2	9	0	0	0	2	0	1	0	0	0	1	1	0	0	1	1	0	1	1
gigas	1	0	0	1	2	9	0	0	0	2	1	1	1	0	0	1	1	0	0	1	0	1	1	1
cochabambina	9	9	9	1	2	9	0	0	0	2	1	1	1	9	9	9	9	9	0	1	0	1	1	1
crassicornis	1	0	0	1	2	9	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0
indecissa	1	0	0	1	1	9	2	2	1	1	0	0	0	0	0	0	0	1	0	1	1	0	1	0
baeri	1	0	0	1	2	9	1	0	1	1	0	0	0	0	0	0	1	0	1	0	0	1	0	0
coelicera	9	9	9	1	2	9	1	0	1	1	0	0	0	9	9	9	9	9	0	1	1	0	1	0
angulicornis	9	9	9	0	0	1	1	0	1	1	0	0	0	9	9	9	9	9	0	1	0	0	1	0
centuncula	1	0	0	1	2	9	1	0	1	1	0	0	0	1	1	0	1	2	1	1	0	1	1	0
hebes	1	0	0	9	9	9	9	9	9	9	9	9	9	1	1	0	1	2	1	1	0	1	9	0
simplicicornis	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0
similaris	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0
holmbergi	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	1	0	0	1	0
potrerillensis	1	0	0	0	0	1	2	1	1	1	0	0	0	0	0	0	1	0	1	1	0	1	0	0
oblata	1	0	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0
gayi	1	0	0	0	0	1	2	1	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0
tricolor	1	0	0	0	0	1	2	1	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0
speciosa	1	0	0	0	0	1	2	1	1	1	0	0	0	1	0	0	2	0	1	1	0	1	0	0
singularis	1	0	0	0	0	0	2	2	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0
crassipes	1	0	0	0	0	0	2	2	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0
burmeisteri	1	0	0	0	0	0	2	3	1	1	0	0	0	1	0	0	0	1	0	1	0	0	1	0
cingillata	1	0	0	0	0	0	2	3	1	1	0	0	0	1	0	0	0	1	0	1	0	0	1	0
oblonga	9	9	9	0	0	0	2	3	1	1	0	0	0	9	9	9	9	9	0	1	0	0	1	0
chacoensis	1	0	0	0	0	2	2	1	1	1	0	0	0	1	0	0	0	1	0	1	1	0	0	0
guttata	1	0	0	0	0	1	2	2	1	1	0	0	0	1	0	0	0	1	0	0	1	0	1	0
joergenseni	0	0	0	0	0	1	2	2	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0
crinita	1	0	0	0	0	1	2	2	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0
pilicornis	1	0	0	0	0	1	2	2	1	1	0	0	0	1	0	0	0	2	0	1	1	0	1	0

Branch A has two possible configurations (figs. 1a, 1c) according to interpretation of characters 17 and 18. All its species are characterized by the swollen male scape and the peculiar cavity that it contains. A swollen scape has appeared twice; it also occurs in *indecissa*. The different structure of the cavity in the two cases supports the idea of convergent origin. Within branch A, *centuncula* and *hebes* are united by several synapomorphies in spite of the fact that the male of *hebes* is not known; it is predicted to have swollen scapes. The preferred cladogram in figure 1a assumes parallel loss of the basal patch of hairs on T5 of the female (character 18). The alternative shown in cladogram 1c assumes one loss and later regaining (in *baeri* and *hebes-centuncula*); this is unlikely (Dollo's rule).

Branch C, the *bizonata* group, contains large bees with specialized features. Synapomorphies

are the reduced pseudopygidial area (character 16), the recurved base of the penis oblique to the longitudinal axis (character 10), the membranous volsella (character 12) and the longitudinally keeled scape of the female (character 2). On the other hand the group shows probably plesiomorphic features in the male genitalia (characters 6, 8), interpreted here as reversals. The group *arechavaletai*, *paranensis*, *gigas* and *cochabambina* form a further derived cluster.

Branch B is a phenetically homogeneous group; the most meaningful characters are related to modification in male genitalia. The positions of *speciosa* and *pilicornis* vary according to interpretation of character states 8-2 and 18-2, whether one or the other is considered to have evolved only once or in parallel. The preferred cladogram shown in figure 1a assumes that the genitalic structure represented by state 8-2 is a synapomor-

phy, and the patch of hairs on female T5, which also appears twice elsewhere in the cladogram, is convergent in *speciosa* and *pilicornis*. The apparent close relationship between *oblata* and *indecissa*, supported by two losses (reversals of characters 6 and 14), is doubtful. Both are distinctive species, particularly *oblata* is highly derived. Although they clearly belong in branch B and its further branch defined by character 8-2, their relationship within that branch remains obscure.

Genus *Doeringiella*

Doeringiella Holmberg, 1886a: 151-152. Type species *Doeringiella bizonata* Holmberg, by monotypy.

Orfilana Moure, 1954: 266-267. Type species *Doeringiella variegata* Holmberg (preoccupied, = *Epeolus holmbergi* Schrottky), by original designation. **Synon. nov.**

Diagnosis. Medium to large epeoline bees similar to *Triepeolus*; supra-antennal areas depressed and frontal carina strong; scape with sub-basal angle, except in those males with swollen scape; preoccipital carina forming sharp angle near upper corners of head; metapostnotum usually bare; middle femur of males with long hairs on underside.

KEY TO THE SPECIES OF *DOERINGIELLA*

FEMALES

- 1. Posterior surface of propodeum at sides of metapostnotum with erect, long hairs (fig. 7). In some specimens of *joergenseni* long hairs may be restricted to lower part of post-erolateral angles, in this case plical surface of scape bearing erect hairs half as long as apical width of scape 2
- Propodeum posteriorly with appressed, short hairs (fig. 6); or appressed hairs restricted to post-erolateral angles of propodeum. Scape never with erect hairs half as long as apical width of scape. 13
- 2. Clypeus and supraclypeal area flat, as seen laterally scarcely protruding in front of eyes. Notaular spots elongate, separate (fig. 9). (T1 and T2 with pale apical bands) *bizonata*
- Clypeus and supraclypeal area convex, as seen laterally protruding in front of eyes. Notaular spots con-

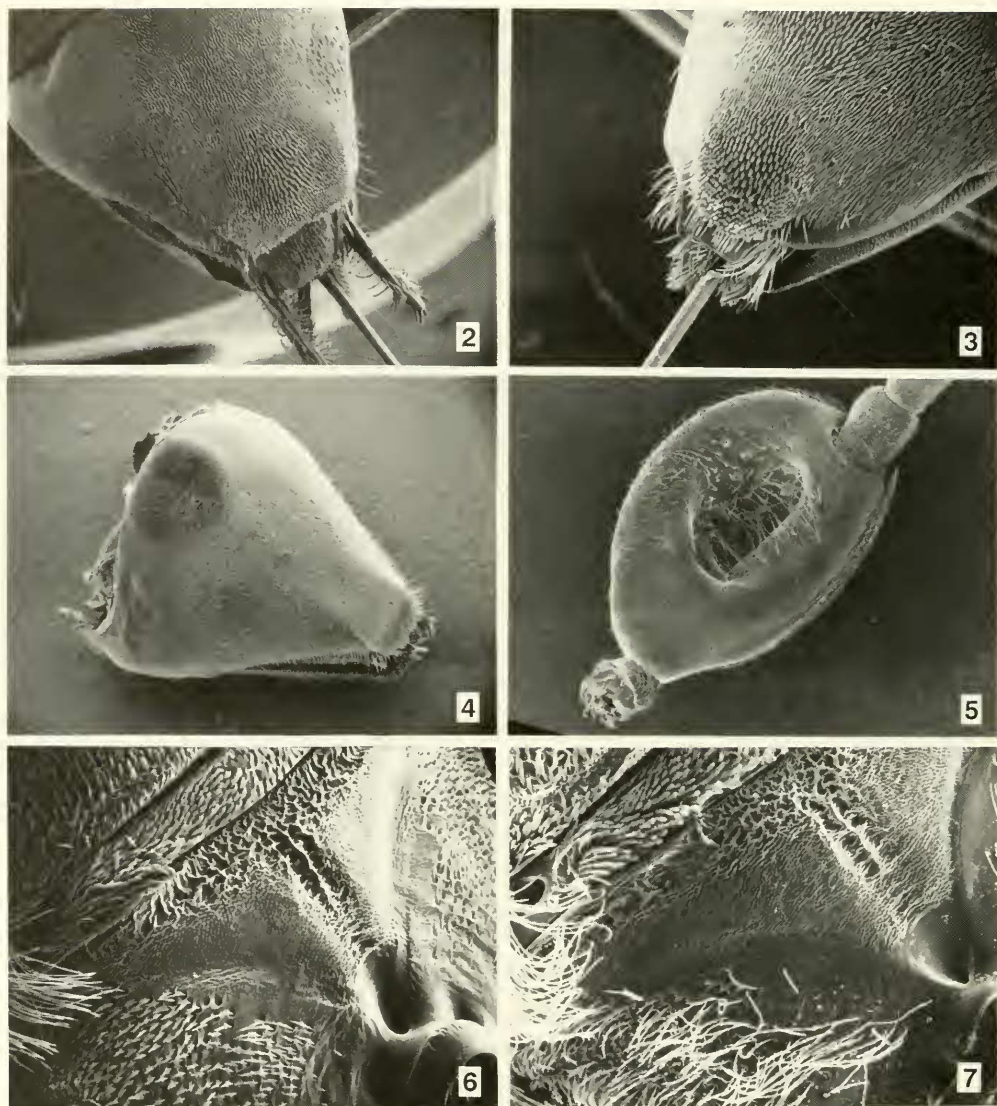
- tiguous with median scutal line or absent 3
- 3. Pseudopygidial area reduced to narrow, ill-defined band, 0.2-0.4 times as long as apical width. Length 10-18 mm. 4
- Pseudopygidial area well defined, 0.6-1.0 times as long as apical width, (figs. 2, 4). Medium-sized species, length 8-11 mm. 7
- 4. Body wholly black, except hind coxae with white hairs above and T1 band reduced to two lateral white spots. Forewing evenly deeply infuscated, veins dark. Scutellum with longitudinal median impression weak *bipunctata*
- Terga with pale apical bands. Forewing slightly infuscated, usually darker towards apex, veins brownish. Scutellum bigibbous, with strong longitudinal impression 5
- 5. Scape without longitudinal keel limiting plical surface. Legs and labrum partly light reddish. (Body hairy, with long creamy-yellow hairs on most of head and thorax; T1-T6 largely maculated. Chilean species) *gigas*
- Scape with longitudinal keel limiting plical surface. Legs and labrum dark 6
- 6. Pale bands absent on T1, complete on T2-T4. Vestiture other than maculations on terga yellowish, on sterna whitish. Hairs around antennal socket whitish *paranensis*
- Pale band on T1 complete or briefly interrupted, on T2 complete to interrupted, on T3 complete, interrupted or absent, on T4 interrupted or absent. Vestiture on terga and sterna other than maculations black. Hairs around antennal socket dark brown. *archavaletai*
- 7. Pseudopygidial area parallel-sided, with slender, dense hairs (fig. 4). S5 narrowed toward apex, truncate (fig. 44). Upper sector of preoccipital carina absent 8
- Pseudopygidial area trapezoidal or semicircular, with sparser, thick hairs (fig. 2). S5 less narrowed to-

- ward apex, evenly rounded (fig. 43).
Upper sector of preoccipital carina present at least medially 9
8. Axilla rounded, not produced at all (fig. 37). Scutellum and antenna black. T1 with apical band and also whitish hairs on sides, leaving central, transverse black patch *hebes*
— Axilla triangular, slightly produced (fig. 36). Scutellum, scape, pedicel and first two flagellomeres red. T1 with apical band only, without whitish hairs on sides *centuncula*
9. Thorax without maculations; T1-T4 with narrow yellowish apical bands to wholly black. Scape without sub-basal angle. (Scape with dense, erect hairs on plical surface and also on opposite surface, as long as half apical width of scape. Metapostnotum delimited by a more or less distinct sulcus). *jorgenseni*
— Thorax with maculations, or if not, T1-T2 with wide white apical bands. Scape with sub-basal angle 10
10. Metanotal tuft and hairs on propodeum black; T1-T2 with wide, straight, apical bands; apex of S5 not bent down apically 11
— Metanotal tuft and hairs on propodeum pale; T1-T4 with apical bands, on T1 usually expanded laterally; apex of S5 bent down apically 12
11. Notaular spots extended laterally, forming single transverse band together with centrally interrupted pronotal band. Flagellum entirely reddish. Labrum with denticles pre-apical, close together, separated by 0.12-0.16 times labral length (fig 16) *baeri*
— Notaular spots and pronotal band absent. Last 2-3 flagellomeres black. Labrum with denticles separated by 0.20-0.24 times labral length, close to apical rim (fig. 19) *potrerillensis*
12. Maculations creamy-yellowish. Apical band on T1 greatly expanded laterally, leaving a central, semicircular black area; on T2 also expanded laterally. Mesepisternal band complete, of long hairs. Flagellum mostly reddish *gayi*
— Maculations whitish. Apical band on T1 transverse or slightly expanded laterally, on T2 transverse, sometimes interrupted medially. Mesepisternal band interrupted behind level of pronotal lobe, of short hairs. First flagellomere reddish, rest of flagellum black *tricolor*
13. Scutellum red. 14
— Scutellum black 15
14. Pseudopygidial area rounded (fig. 3). Clypeus red. Scutellum clothed with short, white hairs. Metanotal tuft white. (Red on clypeus, scutellum, metanotum and sometimes part of supraclypeal area, metapostnotum and propodeum. Posterior surface of propodeum evenly covered with short, appressed white hairs). *guttata*
— Pseudopygidial area truncate. Clypeus black. Scutellum clothed with short, black hairs. Metanotal tuft black. (Tergal bands white, contrasting with the black pubescence of metasoma). *speciosa*
15. Clypeus flat, supraclypeal area depressed, as seen laterally not protruding in front of eyes. (Posterior surface of propodeum at sides of metapostnotum evenly covered with short, appressed hairs. Notaular spots absent. Forewing with wide, dark band along costal margin; remainder of wings hyaline) *oblata*
— Clypeus and supraclypeal area protruding in front of eyes 16
16. T1 with two central confluent yellowish spots separated from apical margin. Proportion of first and second flagellomeres together to scape 0.79-0.87; scape 0.43-0.48 times UID *indecissa*
— T1 with apical band. Proportion of first and second flagellomeres together to scape 0.90-1.20; scape 0.33-0.41 times UID 17
17. Notaular spots absent. Upper sector of preoccipital carina absent near angle. Mesepisternal, posterior scutal, scutellar and metanotal pale

- bands absent. (Narrow pronotal band and hairs around antennal sockets whitish to yellowish; hairs on most of thorax ochraceous. Apical tergal bands yellow, complete on T1-T4) *cingillata*
- Notaular spots present, if not distinct, then occipital carina complete; other maculations of thorax usually present 18
18. Posterior surface of propodeum at sides of metapostnotum with punctures and hairs. Preoccipital carina well developed, complete, angle strong 19
- Posterior surface of propodeum at sides of metapostnotum bare, without punctures; hairs restricted to posterolateral angles. Preoccipital carina variable 20
19. Posterior surface of propodeum with dense, appressed, brown hairs that narrowly border metapostnotum, punctures barely visible because of the hairs. T1 with yellow apical band, no bands on T2-T4. Wings evenly infuscated, forewing with clear subapical spot. Legs dark *crassipes*
- Posterior surface of propodeum with punctures that bear small hairs; punctures may or may not reach border of metapostnotum. T1-T4 with cream-colored apical bands, T5 with cream-colored lateral spots. Wings darkened on apical band. Legs reddish *singularis*
20. Apex of S5 not bent down (lateral view, fig. 42), margin broadly convex. Mesepisternal band present. Length 9.0-12.5 mm 21
- S5 bent down apically (lateral view, fig. 43), if not clearly so (*crinita*), mesepisternal band absent. Size variable 23
21. Paraocular area swollen between antennal socket and upper ocular third. Ocellocular area not depressed, frontal view as in fig. 39. Maximum width of hind basitarsus 1.66-1.82 times apical width. Wings darkened along costal margin *crassicornis*
- Paraocular area between antennal socket and upper ocular third not swollen. Ocellocular area depressed, (fig. 38). Hind basitarsus narrower, maximum width 1.30-1.50 times apical width. Wings darker apically 22
22. Apical band on T2 broadly interrupted medially, reduced to lateral spot *simplicicornis*
- Apical band on T2 complete *similaris*
23. Mesepisternal band absent 24
- Mesepisternal band present, at least from level of scrobe to base of middle coxa 25
24. Apical denticles of labrum on rim (fig. 17). Elevation between antennal sockets with sides slightly concave (cross-section fig. 41). S5 before apex gently convex, the sides not sharply curved upward *crinita*
- Apical denticles of labrum placed before rim (fig. 18). Elevation between antennal sockets with sides convex (cross-section fig. 40). S5 flat before bent apex, the sides sharply curved upward *pilicornis*
25. Apical band on T2 broadly interrupted. Preoccipital carina complete, sharp all the way around, angle nearly absent. Body length 6-9 mm *chacoensis*
- Apical band on T2 complete. Preoccipital carina near angle indistinct or absent. 26
26. Body length 7-8 mm. Yellowish hairs around antennal sockets extended, reaching upper end of clypeus which is thoroughly covered by white pubescence *burmeisteri*
- Body length 9-12 mm. Conspicuous yellowish hairs restricted to sides of antennal sockets; clypeus with dense white pubescence only on apical third *holmbergi*

MALES

1. Scape swollen, with conspicuous cavity 2
- Scape not swollen 12
2. Posterior surface of propodeum at



FIGS. 2-7. 2, *Doeringiella singularis*, apex of female abdomen showing pseudopygidial area on T5. 3, *D. guttata*, same. 4, *D. centuncula*, same. 5, *D. bipunctata*, scape of male. 6, *D. singularis*, posterior view of thorax showing propodeum and metapostnotum. 7, *D. gayi*, same.

sides of metapostnotum with erect hairs (fig. 7) 3
 —. Posterior surface of propodeum with hairs appressed, restricted to the posterolateral angles 11
 3. Fringe of hairs on S5 medially reduced, less developed than on S4. (Hairy species with long, creamy-yellow hairs on most of head and thorax. T1 covered with creamy-yellow pubescence except a central

transverse black area; T2-T6 with apical bands). *gigas*
 —. Fringe of hairs on S5 not medially reduced, similar to that on S4 4
 4. Notaular spots elongate, well separated (fig. 9). Scape globose, as long as basal 5.5-6 flagellomeres together (fig. 46). Scutellum with middle longitudinal impression weak. (T1-T2 with apical bands). *bizonata*
 —. Notaular spots nearly confluent

- on median scutal line, or complete anterior band present. Scape shorter, if nearly as long as combined length of basal 5 flagellomeres, middle longitudinal impression of scutellum strong. 5
5. Axilla projected as strong tooth (figs. 30, 31, 35). Scape as long as basal 3.5-4.7 flagellomeres. Legs dark 6
- Axilla short, triangular (fig. 36). Scape shorter than basal 3 flagellomeres. Legs mostly light red 9
6. Maculations white. Scutum with broad anterior band of short, appressed, silvery hairs. Metanotal tuft black. (Underside of flagellomeres brown) *bipunctata*
- Maculations yellowish. Notaular spots evident, in spite of extended pale pubescence in some cases. Metanotal tuft pale 7
7. T1 without pale apical band. Vertex moderately slanting behind ocelli; posterior ocelli separated from rear margin of head by a distance equal to maximum ocellar diameter. (Scape as in fig. 48). *paranensis*
- T1 with pale apical band, sometimes interrupted medially. Vertex very short, steep behind ocelli; posterior ocelli separated from rear margin of head by a distance less than maximum ocellar diameter. 8
8. Metasomal pubescence other than bands mostly black. Scape as fig. 45 *arechavaletai*
- Metasomal pubescence other than bands whitish. Scape as fig. 49 *cochabambina*
9. Scutellum red. Hairs on underside of middle femur shorter than apical femoral width. T1-T6 with apical bands. *centuncula*
- Scutellum black. Hairs on underside of middle femur as long as or longer than apical femoral width. Apical bands only on T1-T2 10
10. Pubescence other than maculations black. Metanotal tuft black. T1 and T2 with broad white apical band. Whole antenna red *baeri*
- Pubescence other than maculations grayish. Metanotal tuft pale. T1 and T2 with narrow cream-colored apical band. Scape black *coelicera*
11. T1 with subapical band narrowed medially or interrupted. Hole of scape round (fig. 51) *indecissa*
- T1 with apical band. Hole of scape kidney-shaped (fig. 53). *crassicornis*
12. Scutellum red. 13
- Scutellum black 14
13. Clypeus and labrum red. Scutellum clothed with pale hairs. Posterior surface of propodeum evenly covered with dense appressed hairs *guttata*
- Clypeus and labrum black. Scutellum with black hairs arising from punctures. Posterior surface of propodeum at sides of metapostnotum bare, short hairs restricted to posterolateral angles *speciosa*
14. Supraclypeal area flat, not protruding in front of eyes when seen laterally. Forewing with dark costal band, remainder of wings hyaline *oblata*
- Supraclypeal area protruding in front of eyes. Both wings dusky throughout or darker towards apices 15
15. Posterior surface of propodeum at sides of metapostnotum with erect, long hairs (fig. 7), sometimes restricted to the posterolateral angles 16
- Propodeum with short, appressed hairs (fig. 6). 20
16. Hairs of fringe on S5 shorter than on S4, and straight. Posterior scutal, scutellar and metanotal bands present 17
- Hairs of fringe on S5 as developed as that on S4, long and apically curled. Posterior scutal, scutellar and metanotal bands absent. 18
17. Apical band on T1 expanded laterally, leaving a central, semicircular black area; on T2 also expanded laterally. Tergal bands creamy-yellowish. Mesepisternal band complete, of long hairs. Flagellum

- mostly reddish *gayi*
- Apical band on T1 of uniform width or slightly expanded laterally; on T2 transverse. Tergal bands whitish. Mesepisternal band reduced, of short hairs. First flagellomere reddish, rest of flagellum black *tricolor*
- 18. Plical surface of scape evenly curved, without sub-basal angle (fig. 25). Long hairs on propodeum usually restricted to posterolateral angles. Apical tergal bands yellowish, narrow, or metasoma wholly black. (Erect hairs on plical surface as long or longer than apical width of scape, also erect hairs present on opposite surface). *jorgenseni*
- Plical surface of scape with sub-basal angle. Posterior surface of propodeum with long hairs at sides of metapostnotum. T1 and T2 with broad white apical bands 19
- 19. Sub-basal angle of scape weak. Preoccipital carina complete. T5-T6 with apical band. Antenna mostly red *potrerillensis*
- Sub-basal angle of scape notably strong (fig. 24). Upper sector of preoccipital carina obliterated near angle. T5-T6 black. Antenna yellowish *angulicornis*
- 20. Hind tibia notably swollen, thicker than femur (fig. 21). Propodeum posteriorly with dense, appressed, pale hairs that closely border metapostnotum. T1-T2 with apical band *crassipes*
- Hind tibia not thicker than femur. Posterior surface of propodeum at sides of metapostnotum usually bare and without punctures; if punctures and hairs present, then T1-T6 with apical bands 21
- 21. Plical surface of scape with erect hairs as long as width of pedicel. Mesepisternal band absent. Preoccipital carina complete 22
- Plical surface of scape with hairs no longer than half diameter of pedicel. Mesepisternal band and preoccipital carina variable. 23
- 22. Plical surface of scape with sub-basal angle indistinct, opposite surface with hairs erect. Fringe on S5 as well developed as that on S4 *crinita*
- Plical surface of scape with sub-basal angle strong, opposite surface with hairs mostly appressed. Fringe on S5 barely surpasses posterior margin of sternum *pilicornis*
- 23. Posterior surface of propodeum at sides of metapostnotum with punctures that bear small hairs (fig. 6); punctures may or may not reach border of metapostnotum. Preoccipital carina complete. Fringe on S5 with hairs long, surpassing posterior border of sternum by 1/3 of their length. (Maculations white, legs red) *singularis*
- Posterior surface of propodeum at sides of metapostnotum bare, without punctures, hairs restricted to posterolateral angles; if punctures are more widespread on posterior surface of propodeum (some specimens of *cingillata*), upper sector of preoccipital carina weak near angle, and fringe on S5 with short, straight hairs, barely surpassing posterior border of sternum 24
- 24. T1 with extensive pale pubescence laterally and apically, with central oval area almost to completely devoid of pale hair. Fringe on S5 as developed as that on S4, hairs long and apically curled. *oblonga*
- T1 with apical band. Fringe on S5 usually reduced, when more or less developed, size small, less than 8 mm long. 25
- 25. Underside of middle femur with appressed, sparse, very short hairs. Preoccipital carina complete. (Mesepisternal band present. Fringe on S5 barely surpasses posterior margin of sternum) *chacoensis*
- Underside of middle femur with erect, long hairs, at least as long as half apical width of femur. Preoccipital carina usually obliterated near angle 26
- 26. Maculations on thorax poorly defined. Wings ferruginous. Some punctures extending onto posterior

- surface of propodeum. Proportion of AOD to IAD 0.50-0.61 *cingillata*
- Maculations on thorax clearly defined. Wings hyaline or infuscated. Punctures and hairs restricted to posterolateral angles of propodeum. Proportion of AOD to IAD 0.35-0.46 27
27. Length less than 8 mm. Fringe on S5 surpassing posterior margin of sternum, hairs slightly curled. *burneisteri*
- Length more than 8 mm. Fringe on S5 reduced, especially in middle, barely surpassing posterior margin of sternum. 28
28. T2 with apical band broadly interrupted in middle, reduced to lateral spots. Notaular spots separated from posterior border of pronotum by a black to brown, transverse band *simplicicornis*
- T2 with apical band complete. Notaular spots reaching posterior border of pronotum or not 29
29. Thorax globose, its maximum width 1.15-1.20 times maximum width of head. Notaular spots usually separated from posterior border of pronotum by transverse, dark band. S2 with apical band of dense, semiappressed, white hairs *similaris*
- Maximum width of thorax 1.0-1.06 times maximum width of head. Notaular spots reaching posterior border of pronotum. S2 with apical hairs not forming dense band *holmbergi*

Doeringiella angulicornis sp. nov.
(Fig. 24)

This remarkable species is described from a single male. The shape of the scape is unique, with the sub-basal angle strongly developed (fig. 24), hence the specific name. The genitalia approach those of *baeri*, *coelicera* and *centuncula*, whose males have swollen scapes. The color pattern, deep black vestiture with white maculations, is similar to that of *baeri*, but the antennae, legs and venation are yellowish.

Holotype male. Length 11.0 mm, length of forewing 9.5 mm. (a) Integument black; center of mandible, labrum in part and pronotal lobe red;

antenna and legs beyond coxae yellowish brown; metasomal sterna brown basally. Wings hyaline with dark apical band, veins yellowish brown. (b) Face and labrum with long, appressed hairs; scape with erect, white hairs, on plical surface as long as diameter of pedicel; a few white hairs on sternal region of thorax; remainder of head and thorax with long black vestiture, on scutum mixed with stiff, simple, black hairs; propodeum completely covered with long, erect, black hairs; hairs on legs mostly white, but on femora black hairs also present; pubescence of metasoma other than maculations black; sternal fringes black. (c) Maculations of short, appressed, white hairs; pronotal band complete, narrow centrally; scutum with broad anterior band; no other maculations on thorax; T1-T2 with broad apical bands. (d) Middle of mesepisternum with close, coarse punctures, diameter 0.04-0.06 mm, interspaces very narrow. (e) Upper sculptured band of metapostnotum narrower than metanotum; longitudinal impression distinct. Propodeum at sides of metapostnotum with dense punctures and hairs. (g) Paraocular area swollen between antennal socket and upper ocular third. (h) Frontal carina keeled, beginning immediately below anterior ocellus and reaching lower level of antennal sockets. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina obliterated near angle, poorly developed in general. (l) Labrum 0.64 times as long as wide; no upper tubercles; denticles separated by 0.17 times labral length; apical point present. (n) Longitudinal impression of scutellum weak; axilla triangular, tooth very short. (o) Supraspiracular carina restricted to top of spiracle. (s) Length of vein r 0.68 times base of second submarginal cell. (u) Proportion of LID to UID 0.80; AOD to IAD 0.36. (v) Scape not swollen, 0.40 times UID; sub-basal angle notably strong; proportion of first and second flagellomeres together to scape 0.86. (w) Fringe on S5 with long hairs, apically curled, surpassing posterior margin of sternum. (x) Middle femur on underside with erect hairs shorter than apical width; hind femur also with long, erect hairs. (y) Basal third of dorsal edge of penis not sclerotized; without lamella. Volsella present, hairy.

Material studied. Holotype male, ARGENTINA: JUJUY: El Aguilar, 4500 m, 12-I-1972, D.J. Brothers (KU).

Doeringiella archavaletai (Brèthes)
(Figs. 35, 45, 72)

Epeolus archavaletai Brèthes, 1909: 69. Lectotype female, by present designation, no locality label, supposedly from Uruguay (MACN, examined).

Epeolus peterseni Jörgensen, 1912a: 139-140. Holotype male, by monotypy, from Argentina, San Luis, 22-XII-1908 (MLP, examined). Jörgensen, 1912b: 315.

Synon. nov.

Doeringiella (*Doeringiella*) *archavaletai*: Moure, 1954: 266.

Doeringiella (*Doeringiella*) *peterseni*: Moure, 1954: 266.

The lectotype bears a handwritten label of Brèthes "*Epeolus archavaletai*" and a printed label "Col. J. Brèthes". A second specimen with the same labels, at present in Curitiba, is designated paralectotype. Brèthes stated that the specimens probably came from Uruguay; none has locality label.

This species, together with *paranensis*, is the largest in the genus. It belongs to the group with the female pseudopygidial area reduced and the male scape swollen. Among the four species in this group with the scutellum bigibbous and the axilla projected as a strong tooth, it can be distinguished by the deep black vestiture other than maculations and the shape of the scape in both sexes, in the female with plical surface concave apically.

Female. Length 12.3-15.5 mm ($n=10$, $m=14.2$, lectotype 14.7); length of forewing 9.7-12.2 mm ($n=10$, $m=10.9$, lectotype 11.2). (a) Integument deep black, only center of mandible red. (b) Hairs around antennal socket brown; head and thorax with erect, black hairs; hairs of metanotal tuft with pale tips; legs with black vestiture, except outer surface of hind coxa and tibia with white hairs; propodeum with long, erect, brown to black hairs; vestiture of metasoma other than maculations black. (c) Maculations of short, appressed, pale yellow hairs. Pronotal band poorly marked at sides; notaular spots poorly delimited, with some black intermixed hairs; posterior scutal band reduced to lateral spot or complete; no other maculations on thorax; T1-T3 in lectotype with apical band complete and T4 with apical band briefly interrupted medially, in other specimens all bands can be interrupted and on T3-T4 can be absent. (d) Thorax with coarse punctures, slightly separated, diameter 0.05-0.065 mm on middle of mesepisternum, smaller on scutum and scutellum. (e) Upper rugose band of metapostnotum as wide as metanotum; longitudinal impression present. Propodeum at sides of metapostnotum densely punctured, with long erect hairs. (f) Proportion of LID to UID 0.72-0.77 ($n=10$, $m=0.74$, lectotype 0.75); AOD to IAD 0.63-0.82 ($n=10$, $m=0.70$, lectotype 0.72). (g) Paraocular area swollen between antennal socket and upper ocular third. (h) Frontal carina keeled, beginning immediately below anterior ocellus, reaching lower level of antennal sockets and entering supraclypeal area as flat, shiny keel; elevation between sockets tuberculiform, with sides convex. (i) Paraocular carina ending below lower tangent

of anterior ocellus. (j) Upper sector of preoccipital carina absent, area behind ocelli steep, with strong punctures. (l) Labrum 0.63-0.68 times as long as wide ($n=10$, $m=0.66$, lectotype 0.65); upper tubercles well developed, area between them depressed; apical denticles separated by 0.24-0.34 times labral length ($n=10$, $m=0.28$, lectotype 0.30); apical point and short apical longitudinal carina present. (m) Scape 0.42-0.46 times UID ($n=10$, $m=0.44$, lectotype 0.44); proportion of first and second flagellomeres together to scape 0.72-0.86 ($n=10$, $m=0.77$, lectotype 0.80); sub-basal angle strong; apical third of plical surface concave, delimited by longitudinal keel. (n) Scutellum bigibbous with strong longitudinal impression; axilla produced as strong tooth. (o) Supraspiracular carina well developed, continued along posterolateral angle of propodeum, ending in tubercle. (p) Apex of S5 not reflexed. (q) T5 without basal patch of hairs. Pseudopygidial area poorly defined, formed by thin hairs, 0.2 times as long as wide. (s) Length of vein r 0.9-1.1 times base of second submarginal cell.

Male. Length 13-17.5 mm ($n=5$, $m=14.8$); length of forewing 10.2-11.8 mm ($n=5$, $m=11.0$). (t) Vestiture similar to that of female, but white hairs covering whole face, more extended on legs, sternal region of thorax and propodeum in some specimens. Scutum with broad anterior band; posterior scutal band usually complete. Metasomal bands always present on T1-T4, variable on T5 and T6; bands complete or interrupted. (u) Proportion of LID to UID 0.76-0.77 ($n=5$, $m=0.762$); of AOD to IAD 0.37-0.48 ($n=5$, $m=0.41$). (v) Scape greatly swollen, 0.64-0.67 times UID ($n=5$, $m=0.65$); as long as basal 4.5-4.75 flagellomeres; proportion of first and second flagellomeres together to scape 0.44-0.54 ($n=5$, $m=0.50$); cavity wider than entrance hole. (w) Fringe on S5 with dense, long hairs that surpass posterior margin of sternum. (x) Underside of middle femur with erect hairs shorter than apical width; of hind femur with short semiappressed hairs. (y) Dorsal edges of penis parallel, continuously sclerotized, without lamella. Volsella indicated by faint sclerotization.

Material studied. ARGENTINA: SALTA: 1 F, Chorrillos, 2000 m, II-1987, M. Fritz (MF). CATAMARCA: 1 F, 1 M, Andalgalá, El Potrero, 10-III-1974, J.L. Neff, on *Verbena encelioides* (CTMI). MENDOZA: 1 M (CAS); 1 M, Tupungato, 1500 m, 25-I-1961, A. Willink (IML). SAN LUIS: 1 M, San Luis, 22-XII-1908 (holotype of *Epeolus peterseni*). BUENOS AIRES: 1 M, Sierra de la Ventana, I-1952, F.H. Walz (KU); 1 M, San Blas (MACN); 1 M, Mar del Plata, Farina (MACN); 3 F, 3 M, Felipe Sola, XII-1944, A. Martínez (MLP); 1 M, Felipe Sola, I-1959, Martínez (UFPR); 1 F, Bolívar, XI-1950, J. Foerster (KU); 1 F, Bolívar, XI-1951 (MLP). LA PAMPA: 2 F, 1 M, (MACN). RIO NEGRO: 1 F, Pomona,

XII-1984, M. Fritz (MF); 1 F, Lamarque, I-1974, M. Fritz (MF); 1 F, 1 M, Rio Colorado, 19-II-1913, P. Jørgensen (MLP); 1 F, Rio Colorado, XI-1953, F.H. Walz (UFPR). NEUQUEN: 1 F, Alicura, 9-II-1972, D.J. Brothers, D.C. Lloyd (KU).

Doeringiella baeri (Vachal)
(Figs. 16, 55, 59, 60, 67)

Epeolus baeri Vachal, 1904: 23-24. Lectotype female, by present designation, from Argentina, Tucumán, Lara, 4000 m, G.A. Baer (Mus. Paris examined). Schrottky, 1913: 264.

Doeringiella (Orfilana) baeri: Moure, 1954: 270.

This species can be recognized by the swollen male scape, the labrum with close apical denticles, the wholly red antenna, the contrasting black coloration with white maculations, female with well developed pseudopygidial area and S5 not bent down apically. Some specimens are more hirsute than others; specimens from Mendoza have hairs on the face mostly appressed. The anterior femur has long black hairs in the lectotype and specimens from El Infiernillo, El Cincel and Tin Tin.

Female. Length 8-10.5 mm ($n=5$, $m=9.7$, lectotype 10.5); length of forewing 6.6-9 mm ($n=5$, $m=7.9$, lectotype 8.5). (a) Integument black; mandible dark red; following parts light reddish: entire antenna, legs beyond coxae, pronotal lobe and tegula. Wings moderately to strongly infuscated, darker apically; stigma and veins of basal half of wing reddish. (b) Body hirsute, head and thorax with long, erect, black hairs; stiff, simple hairs among normal plumose ones; propodeum completely covered with long black hairs; femoral hairs vary from long and black to short and pale; vestiture of metasoma other than maculations black. (c) Maculations of short, appressed, white hairs (in lectotype yellowish, obviously dirty); pronotal band medially interrupted; notaular spots united, forming continuous transverse band; no other maculations on thorax; T1 and T2 with complete apical bands. (d) Middle of mesepisternum with coarse, confluent punctures, diameter 0.03-0.06 mm (lectotype 0.05-0.056), interspaces narrow. Scutum and scutellum also with strong confluent punctures, but smaller. (e) Metapostnotum with upper rugose band narrower than width of metanotum, with marked longitudinal impression. Propodeum around metapostnotum with strong punctures and long hairs. (f) Proportion of LID to UID 0.72-0.76 ($n=5$, $m=0.73$, lectotype 0.72); AOD to IAD 0.63-0.77 ($n=5$, $m=0.70$, lectotype 0.71). (g) Paraocular area not depressed, supra-antennal area moderately depressed. (h) Frontal carina keeled, low, beginning half ocellar diameter below anterior ocellus, barely surpassing lower level of sockets; elevation between

antennal sockets with sides slightly concave. (i) Paraocular carina not reaching lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina poorly marked near angle. (l) Labrum 0.56-0.64 times as long as wide ($n=5$, $m=0.61$, lectotype 0.61), slightly concave medially; no tubercles or longitudinal carina; denticles clearly preapical, separated by 0.12-0.185 times labral length ($n=5$, $m=0.154$, lectotype 0.185). (m) Scape short and thick, 0.31-0.36 times UID ($n=5$, $m=0.32$, lectotype 0.31); proportion of first and second flagellomeres together to scape 1.06-1.22 ($n=5$, $m=1.14$, lectotype 1.22); sub-basal angle slightly marked. (n) Upper surface of scutellum without longitudinal impression; axilla short, triangular, scarcely projecting. (o) Supraspiracular carina short, concave, restricted to top of spiracle. (p) Apex of S5 not bent down. (q) Base of T5 with hairs dense, but not a distinct patch. Pseudopygidial area 0.75 as long as wide, semicircular. (s) Length of vein r 0.65-0.85 times base of second submarginal cell.

Male. Length 8-12 mm ($n=3$, $m=10$); length of forewing 7.3-8.8 mm ($n=3$, $m=8.2$). (t) Vestiture similar to that of female, face with silvery hairs, anterior band on scutum wider; venter of thorax with white hairs; sternal fringes black. (u) Proportion of LID to UID 0.77-0.84 ($n=3$, $m=0.79$); of AOD to IAD 0.42-0.45 ($n=3$, $m=0.45$). (v) Scape swollen, 0.50-0.52 times UID ($n=3$, $m=0.51$), as long as basal 3 flagellomeres together; proportion of first and second flagellomeres together to scape 0.72-0.74 ($n=3$, $m=0.73$); cavity wider than entrance hole. (w) Fringe on S5 with curled hairs that surpass posterior margin of sternum. (x) Underside of middle femur with erect hairs as long as apical width. (y) Basal third of dorsal edges of penis not sclerotized; no lamella. Volsella present, hairy.

Material studied. ARGENTINA: Jujuy: 1 F, Rio Cincel, W of Abra Pampa, 3500-3700 m, II-10-1970, L. Peña (AMNH). SALTA: 3 F, Yacochuya, NW Cafayate, 1950 m, 1-15-II-1969, Malaise trap, Willink, Terán, Stange (IML); 3 F, 1 M, Alturas Amblayo, 3200 m, XII-1986, M. Fritz (MF); 1 F, Recta de Tin Tin, Agua del Guanaco, 3600 m, I-1987, M. Fritz (MF). TUCUMAN: 1 F, lectotype, Lara, 4000m, G. A. Baer (Paris); 1 F, El Infiernillo, 3000 m, 3-I-1974, A. Willink (IML); 1 F, Tafi del Valle, 2100 m, 2-3-XII-1979, C. M. Vardy (BMNH). CATA-MARCA: 1 F, Minas Capillitas, 3000 m, 3-I-1973, J. L. Neff, on *Senecio flagellisetis* (CTMI); 1 M, El Pucará, 2000 m, 22-XI-1972, J. L. Neff, on *Glandularia* (CTMI); 1 M, Cuesta Minas Capillitas, 3000 m, 27-I-1974, J. L. Neff (CTMI). CÓRDOBA: 1 F, Saltos Blancos, 7-I-1980, L. Stange, R. Woodruff (FSCA). MENDOZA: 4 F, Uspallata, XII-1979, A. Roig A. (MACN, KU); 5 F, Uspallata, 1940 m, 6-XII-1979, C. and M. Vardy (BMNH).

***Doeringiella bipunctata* (Friese)**
(Figs. 5, 10, 14, 30, 52)

Epoolus bipunctatus Friese, 1908: 83. Lectotype female, by present designation, from Argentina, Salta, 1200 m, 20-XII-1905, Steinbach col. (ZMB, examined). Jensen-Haarup, 1908: 106; Jörgensen, 1909: 218-219; Jörgensen, 1912a: 139; Jörgensen, 1912b: 315; Friese, 1912: 364; Schrottky, 1913: 264.

Doeringiella (Doeringiella) bipunctata: Moure, 1954: 265.

This species is easy to recognize among related forms with the female pseudopygidial area reduced and the male scape swollen by its extensive black coloration, the silvery maculations of male, the low proportion of AOD to IAD and the weak longitudinal impression of the scutellum. The presence of stiff hairs on the male sternum 8 is an autapomorphy.

Female. Length 10.2-13.8 mm (n = 5, m = 11.5, lectotype 12); length of forewing 9-11 mm (n = 5, m = 9.9, lectotype 11). (a) Integument black. Forewing deeply infuscated, hindwing infuscated on apical third. (b) Entire body covered with black hairs. (c) Maculations reduced to white lateral spot on T1 and white strip on hind coxa. (d) Middle of mesepisternum with dense, close punctures, diameter 0.025-0.031 mm, interspaces narrow, polished; punctures on scutum smaller, more separated. (e) Upper rugose band of metapostnotum narrower than width of metanotum, longitudinal impression weak. Propodeum at sides of metapostnotum densely punctured, with long, erect hairs. (f) Proportion of LID to UID 0.67-0.71 (n = 5, m = 0.69, lectotype 0.70); AOD to IAD 0.55-0.62 (n = 5, m = 0.59, lectotype 0.60). (g) Supra-antennal area well depressed. Paraocular area swollen between antennal socket and upper ocular third. (h) Frontal carina keeled, beginning half ocellar diameter below anterior ocellus, briefly surpassing lower level of sockets; elevation between antennal sockets with sides slightly convex. (i) Paraocular carina ending just below lower tangent of anterior ocellus. (j) Preoccipital carina complete, sharp; angle low. (l) Labrum 0.61-0.72 times as long as wide (n = 5, m = 0.66, lectotype 0.72), with a shallow central depression; no upper tubercles; apical denticles separated by 0.21-0.28 times labral length (n = 5, m = 0.23, lectotype 0.21); no apical point nor longitudinal carina. (m) Scape 0.43-0.45 times UID (n = 5, m = 0.44, lectotype 0.43), proportion of first and second flagellomeres together to scape 0.84-0.91 (n = 5, m = 0.87, lectotype 0.91); plical surface concave apically, subbasal angle present. (n) Longitudinal impression of scutellum weak; axilla produced in long, strong, inwardly bent tooth. (o) Supraspiracular carina strong above spiracle. (p) Apex of S5 not bent down. (q) T5 without basal patch of hairs. Pseudopygidial area poorly defined, of thin hairs, 0.2 times as long as apical width. (s) Length of

vein r 0.85-1.0 times base of second submarginal cell.

Male. Length 10.2-13.5 mm (n = 8, m = 11.7); length of forewing 8.8-10.7 (n = 8, m = 9.8). (t) Male differs in appearance from female due to silvery white maculations: whole face up to anterior ocellus; convex surface of scape; pronotal band interrupted medially, but covering whole pronotal lobe; broad medially interrupted band on anterior third of scutum; posterior scutal band as lateral spot; tegula (basal third and apex); central spot on scutellum; mesepisternum in some specimens with spot below pronotal lobe; hind coxa above; T1 with apical band briefly interrupted, T2 with apical band broadly interrupted, on T3-T6 lateral spots may be present, variable. Flagellum with longitudinal light brown stripe. Wings hyaline with dark apical band. (u) Proportion of LID to UID 0.71-0.77 (n = 5, m = 0.74); AOD to IAD 0.37-0.44 (n = 5, m = 0.41). (v) Scape greatly swollen, 0.60-0.65 times UID (n = 5, m = 0.63), as long as the 4 basal flagellomeres together; proportion of first and second flagellomeres together to scape 0.53-0.56 (n = 5, m = 0.55); cavity present; entrance hole ample, but narrower than cavity. (w) Fringe on S5 with curled apical hairs that surpass posterior margin of sternum. (x) Underside of middle femur with erect hairs as long as apical width; hind femur with short semiappressed hairs. (y) Dorsal edges of penis continuously sclerotized, parallel, without lamella. Volsella indicated by faint sclerotization.

Material studied. 41 F and 38 M from *URUGUAY*: Montevideo, and *ARGENTINA*: provinces of Salta, Catamarca, La Rioja, San Juan, Mendoza, Buenos Aires, Rio Negro, Neuquén and Chubut (fig. 10). Collection dates are from September to early March. Flower record: *Grindelia* sp.

***Doeringiella bizonata* Holmberg**
(Figs. 8, 9, 10, 12, 26, 46, 68, 73)

Doeringiella bizonata Holmberg, 1886a: 153-154, figs. 12-18. Lectotype female, by present designation, 10-II-1883 (MACN, examined). Holmberg, 1886b: 278; Dalla Torre, 1896: 335; Schrottky, 1903: 183; Cockerell, 1922: 10.

Epoolus bizonatus: Schrottky, 1913: 264.

Epoolus (Doeringiella) bizonatus: Cockerell, 1917: 479.

Doeringiella (Doeringiella) bizonata: Moure, 1954: 264, fig. a-c.

Three females and one male with Holmberg's handwritten labels are preserved in the MACN. One female in good condition is designated lectotype; the other 3 specimens are in poor condition. None has a locality label, but date labels (10-II-1883 and 25-II-1880) indicate that they belong to the original series.

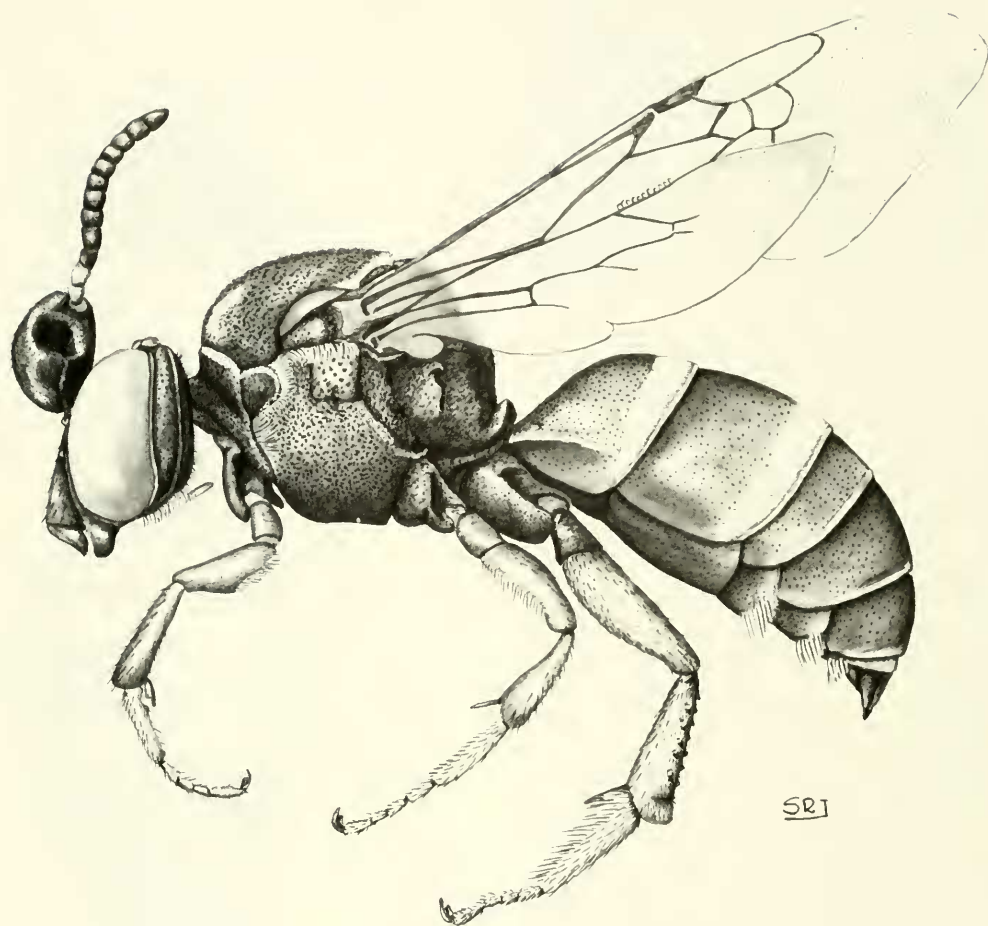


FIG. 8. Lateral view of male *Doeringiella bizonata*.

This species is readily distinguished by its flat clypeus and supraclypeal area, reduced pseudopygidial area in the female and extraordinarily swollen scape in the male, as long as the basal 5.5-6 flagellomeres. The notaular spots are longer than wide, separated by a distance similar to the spot width; *bizonata* and *hebes* are the only species with this pattern.

Female. Length 10.2-15 mm ($n=22$, $m=11.9$); length of forewing 8.3-11 mm ($n=22$, $m=9.5$). (a) Integument black; center of mandible and tegula red; scape, pedicel and legs beyond coxae dark red; sterna and T6 may be reddish; first flagellomere usually reddish. Wings hyaline with broad, dark apical band, veins dark brown. (b) Hairs around antennal socket pale brown; supra-antennal area, vertex and occipital region with erect brown hairs; clypeus, labrum, legs, thorax and metasoma excluding maculations with short, appressed, white to grayish hairs. Metanotal tuft

pale. Propodeum with long, erect, white hairs. (c) Maculations of short, appressed, yellow hairs. Pronotal band complete; notaular spots elongated, separated; posterior scutal band complete, extended anteriorly; scutellar and metanotal bands interrupted medially, mesepisternal band from scrobe to base of middle coxa; vertical patch below pronotal lobe; T1-T2 with apical bands, some specimens with band on T2 briefly interrupted medially. (d) Middle of mesepisternum with rather coarse punctures, diameter 0.035-0.050 mm, interspaces narrow, shiny. (e) Upper band of metapostnotum wider than metanotum; longitudinal impression present. Propodeum at sides of metapostnotum with dense punctures and hairs. (f) Proportion of LID to UID 0.69-0.74 ($n=22$, $m=0.72$); AOD to IAD 0.62-0.73 ($n=22$, $m=0.67$). (g) Paraocular area swollen between antennal socket and upper ocular third. (h) Frontal carina keeled, beginning half ocellar diameter below anterior ocellus, reaching supraclypeal area as flat and shiny car-

ina; elevation between antennal sockets tuberculiform with sides convex. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina distinct only behind ocelli, absent near angle. (k) Clypeus and supraclypeal area flat, as seen laterally scarcely protruding in front of eyes. (l) Labrum 0.56-0.64 times as long as wide ($n=22$, $m=0.60$); upper tubercles present, low, surface between them depressed; apical denticles separated by 0.30-0.36 times labral length ($n=22$, $m=0.32$); longitudinal carina and apical point present. (m) Scape 0.40-0.45 times UID ($n=22$, $m=0.42$), with longitudinal keel limiting plical surface, apical third concave, sub-basal angle strong; proportion of first and second flagellomeres together to scape 0.73-0.83 ($n=22$, $m=0.77$). (n) Longitudinal impression of scutellum weak; axilla triangular, produced as moderate tooth. (o) Supraspiracular carina strong, continued along postero-lateral angle of propodeum. (p) Apex of S5 not bent down. (q) T5 without basal patch of hairs. Pseudopygidial area poorly defined, 0.2-0.3 times as long as apical width, hairs slender. (s) Length of vein r 0.75-0.90 times base of second submarginal cell.

Male. Length 9.5-15.0 mm ($n=9$, $m=12.1$); length of forewing 8.4-11.6 mm ($n=9$, $m=9.8$). (t) Color and vestiture similar to those of female but hairs on face white, erect hairs on vertex pale, white hairs on convex surface of scape, sternal fringes brown. (u) Proportion of LID to UID 0.73-0.79 ($n=8$, $m=0.76$); AOD to IAD 0.30-0.39 ($n=8$, $m=0.36$). (v) Scape greatly swollen, 0.66-0.71 times UID ($n=8$, $m=0.68$), as long as basal 5.5-6 flagellomeres together; proportion of first and second flagellomeres together to scape 0.36-0.43 ($n=8$, $m=0.39$); cavity wider than entrance hole. (w) Fringe on S5 with curled hairs that surpass posterior margin of sternum. (x) Underside of middle femur with erect hairs shorter than apical width; hind femur with short appressed hairs. (y) Dorsal edges of penis parallel, continuously sclerotized, without lamella. Volsella indicated by faint sclerotization.

Material studied. 52 F and 173 M from BRAZIL: state of São Paulo, and ARGENTINA: provinces of Jujuy, Formosa, Santa Fe, Entre Rios, Córdoba, Buenos Aires, La Pampa, Rio Negro and Neuquén (Fig. 10). Collection dates are from mid September to early April.

Doeringiella burmeisteri (Friese)

(Fig. 65)

Epeolus burmeisteri Friese, 1908: 86-87. Lectotype male, by present designation, from Argentina, Mendoza, 10-I-1907 (ZMB, examined). Jensen-Haarup, 1908: 98, 107; Jörgensen, 1909: 220, 1912a: 142, 1912b: 316; Schrottky, 1913: 264.

Doeringiella (Orfilana) burmeisteri: Moure, 1954: 269-270.

This species belongs in a group characterized by the presence of a lamella with a conspicuous projection on the male penis, S5 of the female

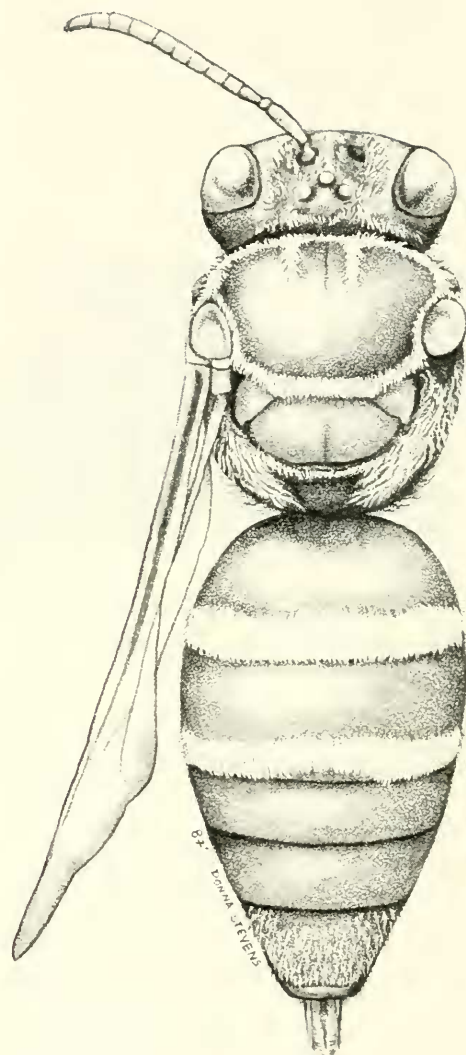


FIG. 9. Dorsal view of female *Doeringiella bizonata*.

with the apex clearly bent down and T5 with hairs denser on a central basal area, but not forming a distinctive patch. All are medium to small-sized species. Among them *burmeisteri* can be recognized by its longer scape (first and second flagellomeres together to scape 0.9-0.95), small size and color pattern; females can be confused with *chacoensis* (see comments under this species).

I have seen several specimens from Mendoza that seemingly belong to the original series (see *Material studied*); only the specimens designated lectotype and paralectotype bear Friese's identification labels. The lectotype bears a red "typus" label above my lectotype label.

Female. Length 6.7-8.2 mm ($n=5$, $m=7.4$);

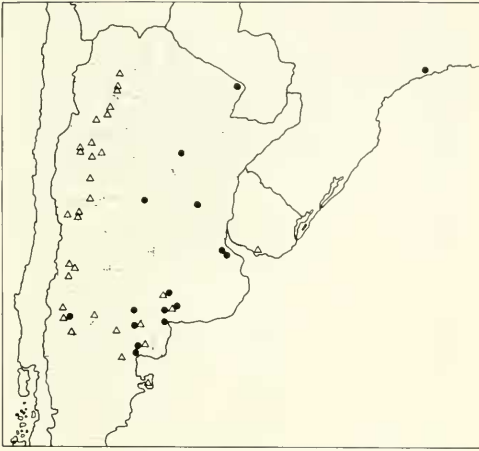


FIG. 10. Distributions of *Doeringiella bizonata* (dots) and *D. bipunctata* (triangles).

length of forewing 5.0-5.7 mm ($n=5$, $m=5.3$). (a) Integument black; first flagellomere, pronotal lobe, tegula and legs beyond coxae light red; mandible, scape and pedicel reddish, partly darkened; specimens from Entre Rios have trochanters and femora darkened. Wings hyaline with dark apical band. (b) Hairs around antennal socket yellow; erect brown hairs on vertex and occipital region; clypeus, labrum, legs and postero-lateral angles of propodeum with white, appressed hairs; thorax and metasomal sterna with pubescence other than maculations very short, white to grayish, on metasomal terga brown. (c) Maculations of short, appressed, yellow hairs; pronotal band interrupted medially, paler on pronotal lobe; notaular spots round, contiguous; posterior scutal, scutellar and metanotal bands complete, narrow; mesepisternal band paler, whitish (complete in specimens from type locality, in specimens from Entre Rios beginning below scrobe); T1-T2 with apical bands, T3-T4 also with apical bands but less defined and paler, T5 with white pubescence denser at sides. (d) Middle of mesepisternum with punctures 0.025-0.035 mm in diameter, interspaces $1/4$ to $1/5$ of diameter of punctures; on scutum closer and smaller. (e) Upper rugose band of metapostnotum as wide as metanotum, with fine sculpture. Propodeum at sides of metapostnotum bare, shiny. (f) Proportion of LID to UID 0.72-0.76 ($n=5$, $m=0.74$); AOD to IAD 0.64-0.71 ($n=5$, $m=0.67$). (g) Depression of supra-antennal area shallow, more like that of *Tripeolus* than of other *Doeringiella* species. (h) Frontal carina beginning one ocellar diameter below anterior ocellus, reaching lower level of antennal sockets; elevation between sockets with sides straight. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Preoccipital carina obliterated near angle. (l) Labrum 0.55-0.61 times as long as wide ($n=5$, $m=0.57$); apical denticles separated by 0.29-0.37 times labral length ($n=5$, $m=0.33$); upper tu-

bercles weak, apical point present. (m) Scape 0.36-0.40 times UID ($n=5$, $m=0.37$); proportion of first and second flagellomeres together to scape 0.90-0.95 ($n=5$, $m=0.94$); sub-basal angle weak, apical third of plical surface convex. (n) Longitudinal impression of scutellum weak, axilla triangular, produced as short tooth. (o) Supraspiracular carina small, restricted to top of spiracle. (p) Apex of S5 bent down. (q) T5 with short hairs denser on basal central area. Pseudopygidial area 0.75 as long as apical width. (s) Length of vein r 0.73-0.75 base of second submarginal cell.

Male. Length 6.9-8.0 mm ($n=7$, $m=7.4$, lectotype 6.9); length of forewing 4.8-5.6 mm ($n=7$, $m=5.1$, lectotype 5.0). (t) Vestiture and coloration similar to those of female but long white hairs over whole face and sternal region of thorax; pubescence other than maculations on thorax and legs longer than in female; T1-T6 with complete apical bands; sternal fringes white. (u) Proportion of LID to UID 0.76-0.82 ($n=7$, $m=0.77$, lectotype 0.77); AOD to IAD 0.41-0.46 ($n=7$, $m=0.45$, lectotype 0.46). (v) Scape not swollen, similar to that of female; 0.40-0.45 times UID ($n=7$, $m=0.42$, lectotype 0.43); proportion of first and second flagellomeres to scape 0.79-0.87 ($n=7$, $m=0.84$, lectotype 0.83). (w) Fringe on S5 with hairs slightly curved or straight, surpassing posterior margin of sternum. (x) Middle femur with erect hairs on underside longer than apical width; hind femur with appressed hairs on basal half. (y) Basal half of penis only partly sclerotized dorsally, lamella present, forming projection. Volsella present, hairy.

Material studied. ARGENTINA: MENDOZA: 1 M lectotype, 10-I-1907 (ZMB); 1 F paralectotype, I-1907 (AMNH); 1 F, 1 M, 12-I-1907 and 10-I-1907 (MLP); 1 M, 1-1907 (Museu São Paulo); 1 F, Chacras de Coria, Jensen-Haarup (MACN). LA RIOJA: 1 M, La Rioja (MACN). ENTRE RIOS: 3 M, Primero de Mayo, II-1955, M. Fritz (UFPR); 1 F, V-1956, M. Fritz (UFPR); 1 F, Pronunciamento, III-1973, M. Fritz (KU); 1 F, Arroyo Urquiza, III-1973, M. Fritz (MF).

Doeringiella centuncula sp. nov.
(Figs. 4, 36, 44, 50)

This species together with *hebes* is readily recognized by the lack of the upper sector of the preoccipital carina, the high proportion of IAD to AOD, the female pseudopygidial area parallel-sided, formed by slender and dense hairs (fig. 4), the conspicuous patch of hairs on the base of T5, and S5 narrowed apically with the apex bent down. It is distinguished from *hebes* by its axilla (projected as a short tooth) and T1 (with apical band). It is the only species that combines males with swollen scapes and red scutellum in both sexes. The specific name refers to the basal patch of hairs on the female T5.

Female. Length 8.4-9.6 mm ($n=4$, $m=9.0$, holotype 8.4); length of forewing 7.6-8.0 mm ($n=4$, $m=7.8$, holotype 7.6). (a) Integument black except following red: base of labrum, base of mandible, scape, pedicel, first flagellomere and base of second, round scutal spot contiguous with base of tegula, axilla in part, scutellum, central part of metanotum, trochanters in part, anterior femur, middle and hind femora except black underside, tibiae and tarsi. Wings with dark apical band, veins dark brown. (b) Hairs around antennal socket appressed, whitish; rest of head and thorax with short, whitish, sparse hairs mixed with long, erect ones; metanotal tuft pale; propodeum completely covered with dense, whitish hairs; legs with short, white hairs; metasoma with pubescence other than maculations gray. (c) Maculations whitish, of short, appressed hairs; pronotal band interrupted medially, not covering pronotal lobe; notaular spot small, triangular; posterior scutal band reduced to lateral spot; no other maculations on thorax; T1 with apical band, T2-T4 with apical bands interrupted medially. (d) Thorax with coarse punctation, middle of mesepisternum with punctures 0.035-0.05 mm in diameter, interspaces narrow, shiny. (e) Upper rugose band of metapostnotum wider than metanotum, longitudinal impression present. Propodeum at sides of metapostnotum with dense punctures and hairs. (f) Proportion of LID to UID 0.75-0.81 ($n=4$, $m=0.77$, holotype 0.75); AOD to IAD 0.74-0.77 ($n=4$, $m=0.75$, holotype 0.77). (g) Supra-antennal area slightly depressed, ocellular area flat. (h) Frontal carina keeled, low, beginning immediately below anterior ocellus and reaching lower level of sockets; elevation between antennal sockets with sides straight. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina obliterated. (l) Labrum 0.57-0.65 times as long as wide ($n=4$, $m=0.61$, holotype 0.57); no upper tubercles, longitudinal carina and small apical point present; apical denticles separated by 0.36-0.42 times labral length ($n=4$, $m=0.38$, holotype 0.37). (m) Scape 0.39-0.41 times UID ($n=4$, $m=0.40$, holotype 0.39); proportion of first and second flagellomeres together to scape 0.90-1.0 ($n=4$, $m=0.96$, holotype 0.96); sub-basal angle slightly marked. (n) Longitudinal impression of scutellum weak; axilla short, triangular, scarcely projecting. (o) Supraspiracular carina low, weakly developed in the holotype, in some specimens absent. (p) Apex of S5 narrow, bent down. (q) Base of T5 with outstanding patch of dense hairs. Pseudopygidial area nearly as long as apical width, parallel sided, of slender hairs. (s) Length of vein r 0.60-0.75 times base of second submarginal cell.

Male. Length 9.0-9.8 mm ($n=2$); length of forewing 7.8-8.5 mm. (t) Color and vestiture similar to those of female but scape black, face and venter of thorax with long, white hairs, bands on T1-T2 complete, on T3-T6 interrupted in middle, sternal fringes pale. (u) Proportion of LID to UID 0.78-0.79; AOD to IAD 0.48-0.50. (v) Scape swollen, 0.54-0.56 times UID; as long as basal 3-3.25 flagellomeres together; proportion of first and second flagellomeres together to scape 0.67-0.68; cavity wider than entrance hole. (w) Fringe on S5 with curled hairs that surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside shorter than apical width; hind femur with very short, appressed hairs on basal two thirds. (y) Basal third of dorsal edges of penis not sclerotized; no lamella. Volsella present, hairy.

Material studied. ARGENTINA: JUJUY: 1 F holotype, Uquía, Quebrada de Humahuaca, 2800 m, 17-III-1978, Willink and Fidalgo (IML); 1 M paratype, same locality and collectors, 15-III-1978 (IML); 1 M paratype, 6 km S Volcán, 19-III-1967, Stange and Willink (MACN). SALTA: 14 F paratypes, El Alisal, III-1988, M. Fritz (MF, KU, MACN). CATAMARCA: 1 F paratype, Aimagasta, XI-4-1972, G.E. Bohart (Utah). BOLIVIA: 2 F paratypes, Morochala, 2900 m (MLP).

Doeringiella chacoensis sp. nov.

This species resembles *burneisteri* in coloration and size; these two forms are smaller than all others in the genus. *D. chacoensis* can be distinguished by the broadly interrupted band of T2 (both sexes), the tuberculiform elevation between the antennal sockets of the female, the high proportion of first and second flagellomeres together to the scape (1.04-1.09), and the complete preoccipital carina. This is the only *Doeringiella* whose males have short, appressed hairs on the underside of the middle femur. The name is from the biogeographic area where the species occurs.

Female. Length 5.7-9.0 mm ($n=4$, $m=7.6$, holotype 8.7); length of forewing 5.3-6.8 mm ($n=4$, $m=6.0$, holotype 6.4). (a) Integument black, the following light red: base of mandible, labrum, first flagellomere and base of second, pronotal lobe and tegula; scape, pedicel and legs reddish to nearly black. Wings infuscated, with dark apical band. (b-e) As in *burneisteri*, but notaular spots small, transverse; mesepisternal band interrupted behind level of pronotal lobe; apical band on T2 broadly interrupted medially; T5 without denser hairs at sides. (f) Proportion of LID to UID 0.67-0.71 ($n=4$, $m=0.70$, holotype 0.71); AOD to IAD 0.67-0.73 ($n=4$, $m=0.69$,

holotype 0.73). (g) Paraocular and supra-antennal areas forming a continuous moderate depression. (h) Frontal carina beginning immediately below anterior ocellus, surpassing lower level of antennal sockets, ending in small shiny spot; elevation between sockets with sides convex. (i) Paraocular carina ending at level of lower tangent of anterior ocellus. (j) Preoccipital carina complete. (l) Labrum 0.57-0.65 times as long as wide ($n=4$, $m=0.60$, holotype 0.57); no upper tubercles; apical denticles separated by 0.29-0.34 times labral length ($n=4$, $m=0.31$, holotype 0.32); apical point present. (m) Scape 0.33-0.36 time UID ($n=4$, $m=0.35$, holotype 0.33); proportion of first and second flagellomeres together to scape 1.04-1.09 ($n=4$, $m=1.06$, holotype 1.09); sub-basal angle weak, section of plical surface on apical third convex. (n-q) As in *burmeisteri*, but pseudopygidial area 0.8-1.0 times as long as apical width, trapezoidal. (s) Length of vein r 0.6-0.8 times base of second submarginal cell.

Male. Length 7.7-9.0 mm ($n=2$); length of forewing 6.2-6.3 mm. (t) Color and vestiture similar to those of female, but hairs on face and venter of thorax white; T3-T6 with apical bands that may be interrupted medially. (u) Proportion of LID to UID 0.74-0.75; AOD to IAD 0.44-0.47. (v) Scape not swollen, similar to that of female, 0.39-0.40 times UID; proportion of first and second flagellomeres together to scape 0.87-0.91. (w) Fringe on S5 of straight hairs that barely surpass posterior margin of sternum. (x) Middle femur with short, appressed hairs on underside similar to those on tibia; hind femur with short, appressed hairs on basal 1/5. (y) Basal half of penis only partly sclerotized dorsally, lamella present. Volsella present, hairy.

Material studied. Holotype female, ARGENTINA: TUCUMAN: Los Puestos, Depto. Leales, 11-IV-1967, A. Willink (IML). Paratypes: ARGENTINA: SALTA: 1 F, La Viña, 11-1985, M. Fritz (MF); 1 M, Pulares, 17-I-1973, J.L. Neff (CTMI). TUCUMAN: 1 M, same data as holotype, on *Mikania cordifolia* (IML); 1 M, Las Cejas, 2-IV-1966, L.A. Stange (UCD). BOLIVIA: TARIJA: 1 F, Sachapera, 19-I-1950, A. Martínez (MLP). PARAGUAY: 1 F, Chaco, Cerro León, X-1979, M. Fritz (MACN).

Doeringiella cingillata Moure

Doeringiella (Orfilana) cingillata Moure, 1954: 275-277.
Syntypes of both sexes from Curitiba and Nova Teutonia, Brazil (UFPR, examined).

This species is related to *burmeisteri* by the male penis with a lamella forming a projection. It is easily recognized by its reduced thoracic maculations (usually only the pronotal band and the notaular spots are present), the posterior surface of the propodeum with a few scattered punctures bearing small hairs, the lower sector of the female

frontal carina blunt and the preoccipital carina absent near the angle. For a thorough account of this species, Moure's description should be consulted.

Female. Length 7.0-10.1 mm ($n=8$, $m=8.4$); length of forewing 5.8-7.5 mm ($n=8$, $m=6.6$). (a) Integument black; scape, pedicel, pronotal lobe and tegula brownish, in some specimens legs also brownish; center of mandible and first flagellomere reddish. Wings ferruginous, apically darkened. (b) Face, labrum and legs with whitish hairs; vertex and occipital region with erect, brown hairs; most of thorax and metasoma with short pubescence varying from brown to grayish; metanotal tuft variable, brown to pale. (c) Maculations on thorax reduced to narrow, medially interrupted pronotal band of pale hairs; some specimens with posterior scutal and scutellar bands incipient laterally; T1-T4 with yellow apical bands. (d) Middle of mesepisternum with close, even punctures, diameter 0.025-0.035 mm, interspaces narrow, shiny; punctures on scutum smaller. (e) Upper rugose band of metapostnotum narrower than metanotum; longitudinal impression weak. Propodeum at sides of metapostnotum with scattered punctures bearing small hairs. (f) Proportion of LID to UID 0.72-0.77 ($n=6$, $m=0.74$); AOD to IAD 0.69-0.80 ($n=6$, $m=0.75$). (g) Paraocular area between antennal socket and upper ocular third moderately swollen. (h) Frontal carina beginning half ocellar diameter below anterior ocellus, briefly surpassing lower level of antennal sockets, lower sector blunt; elevation between sockets tuberculiform, with sides convex. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina obliterated near angle. (l) Labrum 0.54-0.60 times as long as wide ($n=6$, $m=0.58$); apical denticles preapical, separated by 0.24-0.33 times labral length ($n=6$, $m=0.28$); no longitudinal carina nor apical point. (m) Scape 0.33-0.39 times UID ($n=6$, $m=0.36$); proportion of first and second flagellomeres together to scape 0.92-1.08 ($n=6$, $m=1.01$); sub-basal angle weak; apical third of plical surface not concave. (n) Longitudinal impression of scutellum weak; axilla triangular, produced as short tooth. (o) Supraspiracular carina restricted to top of spiracle. (p) Apex of S5 bent down. (q) T5 with short hairs denser on basal central area, but not forming definite patch. Pseudopygidial area 0.7-0.8 times as long as apical width. (s) Length of vein r 0.62-0.78 times base of second submarginal cell.

Male. Length 7.8-12.0 mm ($n=5$, $m=9.2$); length of forewing 6.2-7.9 mm ($n=5$, $m=7.1$).

(t) Color and vestiture similar to those of female, but face with silvery hairs, venter of thorax with white hairs, notaular spots present, T1-T6 with yellow apical bands; sternal fringes pale. (u) Proportion of LID to UID 0.77-0.83 ($n=5$, $m=0.80$); AOD to IAD 0.50-0.61 ($n=5$, $m=0.55$). (v) Scape not swollen, similar to that of female; 0.41-0.44 times UID ($n=5$, $m=0.43$); proportion of first and second flagellomeres together to scape 0.80-0.86 ($n=5$, $m=84$). (w) Fringe on S5 with hairs short and straight, barely surpassing posterior margin of sternum. (x) Middle femur with erect hairs on underside shorter than apical width; hind femur with punctures and appressed hairs on basal 1/5 to 1/3. (y) Basal half of penis only partly sclerotized dorsally; lamella present, forming projection. Volsella present, hairy.

Material studied. ARGENTINA: CORRIENTES: 1 F, Ytuzaingó, IX-1982, M. Fritz (MF). BRAZIL: PARA: 1 F, Rolandia, III-1975, M. Alvarenga (Townes). MINAS GERAES: 4 F, 3 M, Araxá, 22-IV-1965, C. Elias (UFPR); 1 M, Pratapolis, IV-1961, C. Elias (UFPR); 1 M, Perdizes, 8-IV-1965, C. Elias (UFPR). PARANA: 1 M, São José dos Pinhais, 18-XI-1966, Laroca and Antoni (UFPR); 2 F, Curitiba, VI and IX-1961, S. Laroca (UFPR); 2 F, 1 M, Curitiba, 5-I-1955, C. D. Michener (KU); 1 F, Curitiba, 8-II-1974, J. G. Rozen and R. C. Thompson (AMNH); 1 F, Campina Grande, nr. Curitiba, II-14-1966, H. and M. Townes (Townes). SANTA CATARINA: 1 F, Nova Teutonia, III-1974, F. Plaumann (BMNH); 12 M, Nova Teutonia, XI-1951, F. Plaumann (KU).

Doeringiella cochabambina sp. nov.

(Fig. 49)

This species is closely allied to *arechavaletai*, *paranensis* and *gigas*. The female is not known but is expected to have a reduced pseudopygidial area. The male is distinguished from *arechavaletai* and *paranensis* by having its head and thorax wholly covered with white, erect hairs and by the shape of the scape, and from *gigas* by the metasomal color pattern and the nonreduced fringe on S5. The specific name is based on the type locality.

Holotype male. Length 13.5 mm; length of forewing 10.3 mm. (a) Integument black, center of mandible red, tarsi brownish. Wings ferruginous, darkened apically. (b) Face with long, appressed, white hairs; shorter white hairs on scape, labrum and gena; long, erect whitish hairs on vertex, occipital region, most of thorax and propodeum; legs also with whitish hairs; meta-

soma with pubescence other than maculations very short, grayish; sternal fringes pale brown. (c) Maculations on thorax blending with general whitish pilosity; notaular spots fused forming a single central patch, posterior scutal band recognizable; T1-T6 with creamy apical bands, on T5-T6 less marked. (d-e, g) As in *arechavaletai*. (h) Frontal carina keeled, beginning immediately below anterior ocellus and surpassing lower level of sockets. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina absent; vertex steep behind ocelli, each posterior ocellus separated from rear margin of head by a distance less than its maximum diameter. (l) Labrum 0.69 times as long as wide; denticles separated by 0.25 times labral length; longitudinal carina and apical point present. (n) Scutellum bigibbous with strong longitudinal impression; axilla produced as strong tooth. (o) Supraspiracular carina strong, continued along postero-lateral angle of propodeum, ending in conspicuous tubercle. (s) Length of vein r subequal to base of second submarginal cell. (u) Proportion of LID to UID 0.85; AOD to IAD 0.48. (v) Scape swollen, 0.64 times UID; as long as the 4.25 basal flagellomeres together; proportion of first and second flagellomeres together to scape 0.54; cavity wider than entrance hole. (w-y) As in *arechavaletai*.

Material studied. Holotype male, BOLIVIA: Cochabamba, 12-III-1957 (UFPR).

Doeringiella coelicera sp. nov.

(Fig. 54)

This species may be most closely related to *baeri* or to the *centuncula-hebes* group; the lack of the female prevents a more accurate placement. It is characterized by the swollen scape, as long as the basal 2.6 flagellomeres, the propodeum with long hairs, the legs mostly red, the pale metanotal tuft, the metasoma with grayish general pubescence and cream-colored maculations. The specific name, concave in Latin, refers to the shape of the male scape.

Holotype male. Length 9.8 mm; length of forewing 7.9 mm. (a) Integument black, except following red: center of mandible, base of scape, pedicel, flagellum (but 5 last flagellomeres darker), pronotal lobe, tegula, anterior femur, middle and hind femora except black undersides, tibiae and tarsi. Wings ferruginous, darker towards apices, veins reddish. (b) Long appressed white hairs on face, erect on rest of head; thorax with mixed short, appressed, and long, erect, whitish hairs; metanotal tuft pale; propodeum completely covered with dense, long white hairs; scape and legs with white hairs; metasoma with pubescence other than bands grey; sternal fringes yellowish. (c) Maculations cream-colored, of short, appressed hairs; pronotal band interrupted

medially; notaular spots confluent, forming transverse band; posterior scutal band reduced to lateral spot; no other maculations on thorax; T1-T2 with white apical bands. (d-i) As in *angulicornis*. (j) Preoccipital carina complete. (l) Labrum 0.63 times as long as wide; denticles separated by 0.23 times labral length; no upper tubercles, small apical point present. (n) Longitudinal impression of scutellum weak; axilla triangular with moderate tooth. (o) Supraspiracular carina concave above spiracle, continued along postero-lateral angle of propodeum as low ridge. (s) Length of vein r 0.7 times base of second submarginal cell. (u) Proportion of LID to UID 0.80; AOD to IAD 0.38. (v) Scape swollen, 0.52 times UID; as long as the basal 2.6 flagellomeres together; proportion of first and second flagellomeres together to scape 0.75; cavity wider than entrance hole. (w-y) As in *angulicornis*, but hairs on underside of middle femur longer than apical femoral width.

Material studied. Holotype male from ARGENTINA: TUCUMAN: Trancas, San Pedro de Colalao, 30-III-1949, Guanuco (IML).

Doeringiella crassicornis (Friese)

(Figs. 11, 32, 39, 42, 53)

Epeolus crassicornis Friese, 1908: 83-84. Lectotype female, by present designation, from Argentina, Salta, 2000 m, 3-1905, Steinbach col., (ZMB, examined) Jörgensen, 1909: 219.

Epeolus bizonatus crassicornis: Jörgensen, 1912a: 315; 1912b: 139.

Doeringiella bizonata: Moure, 1954: 264 (in part, not *D. bizonata* Holmberg).

This species has been confused with *bizonata*, as noted in the synonymy; it can be readily distinguished from that and other species that have males with swollen scapes by the bare propodeal surface at the sides of the metapostnotum, with short, appressed hairs on the posterolateral angles; this character is shared with *indecissa*, from which it is distinguished by having T1 with an apical band and by the kidney-shaped entrance hole of the male scape. The legs, pedicel and first flagellomere vary from reddish to black; there is no geographic correlation.

Female. Length 9.0-12.5 mm (n=6, m=11.3, lectotype 11); length of forewing 7.7-10.0 mm (n=6, m=9.2, lectotype 9.5). (a) Integument black; center of mandible and legs dark red to black; pedicel and first flagellomere reddish; tegula reddish, translucent. Wings infuscated, forewing darkened on costal margin, veins dark brown. (b) Hairs around antennal socket yellow; supra-antennal area, vertex and occipital area with long, brown hairs; clypeus and labrum with short, white hairs. Thorax, legs and metasoma with short, white to grayish hairs, denser on hind

coxa and tibia; metanotal tuft pale; postero-lateral angles of propodeum with semiappressed white hairs. (c) Maculations of short, appressed, pale yellow hairs; pronotal band complete or briefly interrupted medially; notaular spots rounded, somewhat extended posteriorly, contiguous with middle line; posterior scutal band complete, not extended anteriorly; tegula covered on anterior third; mesepisternal band briefly interrupted behind level of pronotal lobe; scutellar and metanotal bands complete; T1 with apical band, sometimes interrupted medially; T2 with apical band complete. (d) In general with fine and regular punctuation; middle of mesepisternum with punctures 0.025-0.040 mm, separated by 1/2 to 1/5 the smaller diameter, some scattered wider interspaces present. (e) Metapostnotum with upper rugose band wider than metanotum, finely punctured. Propodeum at sides of metapostnotum shiny and usually bare (lectotype with 4-5 scattered punctures). (f) Proportion of LID to UID 0.69-0.74 (n=6, m=0.72, lectotype 0.74); AOD to IAD 0.55-0.65 (n=6, m=0.61, lectotype 0.61). (g) Paraocular area swollen between antennal socket and upper ocular third. Ocellular area flat. (h) Frontal carina high, keeled, beginning one ocellar diameter below anterior ocellus and surpassing lower level of antennal sockets; elevation between sockets with sides slightly convex. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Preoccipital carina sharp, complete, angle well developed. (l) Labrum 0.56-0.62 times as long as wide (n=6, m=0.59, lectotype 0.62); apical denticles separated by 0.31-0.41 times labral length (n=6, m=0.35, lectotype 0.37); apical point and short apical carina present. (m) Scape 0.37-0.41 times UID (n=6, m=0.39, lectotype 0.41); proportion of first and second flagellomeres together to scape 0.89-1.03 (n=6, m=0.94, lectotype 0.90); section of scape on apical third with plical surface flat to slightly concave. (n) Longitudinal impression of scutellum weak; axilla short, triangular. (o) Supraspiracular carina well developed, continued along postero-lateral angle of propodeum as low ridge. (p) Apex of S5 not bent down. (q) T5 without basal patch of hairs. Pseudopygidial area 0.85-0.95 as long as apical width. (r) Hind basitarsus near base 1.66-1.82 as wide as apex. (s) Length of vein r 0.8-0.9 times base of second submarginal cell.

Male. Length 9.1-12.6 mm (n=12, m=11.24); length of forewing 7.8-10.1 mm (n=12, m=9.24). (t) Color and vestiture similar to those of female. (u) Proportion of LID to UID 0.75-0.80 (n=8, m=0.78); AOD to IAD 0.31-0.37 (n=8, m=0.34). (v) Scape swollen, 0.51-0.56 times UID (n=8, m=0.54), as long as the basal 3-3.3 flagellomeres together; proportion of first and second flagellomeres together to scape 0.62-0.69 (n=8, m=0.66); cavity wider than entrance hole. (w) Fringes on S3-S5 occupying the central two thirds; fringe on S5 with curled hairs that surpass posterior margin of sternum. (x) Under-

side of middle femur with long hairs; of posterior femur with short hairs and punctures on the basal 4/5. (y) Dorsal edges of penis continuously sclerotized; without lamella. Volsella present, hairy.

Material studied. 28 F and 51 M from ARGENTINA: provinces of Salta, Tucumán, Catamarca, La Rioja, Córdoba, Buenos Aires, San Luis, San Juan and Mendoza (fig. 11). Collection dates are from mid October to late January. Flower records: *Prosopis alba*, *Prosopis chilensis*, *Medicago sativa*, *Verbesina encelioides* and *Verbesina enccephaloides*.

***Doeringiella crassipes* sp. nov.**

(Fig. 21)

This species can be recognized by the dense covering of short, appressed hairs on the posterior surface of the propodeum; the strong, complete preoccipital carina; the infuscated wings and the tuberculiform elevation between the antennal sockets of the female. The male has a unique hind tibia, notably swollen; the specific name refers to this character.

Holotype female. Length 9.0 mm; length of forewing 7.0 mm. (a) Integument mostly black; labrum, scape, pronotal lobe, tegula and legs in part brownish; first flagellomere light brown. Wings infuscated, forewing with subapical hyaline spot apicad from closed cells. (b) Hairs around antennal sockets pale yellow; short, appressed, white hairs on clypeus, labrum, gena, venter of thorax and legs; most of thorax and metasoma with pubescence other than maculations brown to grayish, paler on mesopleura and sides of T1; propodeum with dense, appressed, brown hairs that narrowly border metapostnotum. (c) Maculations of short, appressed, yellow hairs; pronotal band medially interrupted; notaular spots small; posterior scutal and metanotal bands complete; scutellum with pale hairs at sides; mesepisternal band consisting of spot below pronotal lobe and band from level of scrobe to base of middle coxa; T1 with lateral band expanded laterally; T2 with apical band weak, narrow. (d) Middle of mesepisternum with punctures 0.025-0.035 mm, interspaces half the smaller diameter. Punctures on scutum smaller. (e) Upper rugose band of metapostnotum as wide as metanotum; longitudinal impression weak. Propodeum at sides of metapostnotum densely punctured. (f) Proportion of LID to UID 0.71; AOD to IAD 0.61. (g) Paraocular and supra-antennal areas forming a continuous depression. (h) Frontal carina beginning half ocellar diameter below anterior ocellus, surpassing lower level of antennal sockets, lower sector blunt; elevation between sockets tuberculiform, with sides con-

vex. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina complete, strong. (l) Labrum 0.56 times as long as wide; apical denticles separated by 0.31 times labral length; no upper tubercles, apical point small. (m) Scape 0.38 times UID; first and second flagellomeres together as long as scape; sub-basal angle weak, apical third of plical surface not concave. (n) Longitudinal impression of scutellum weak; axilla triangular, produced as moderate tooth. (o) Supraspiracular carina blunt, continued along postero-lateral angle of propodeum as low ridge. (p) Apex of S5 bent down. (q) T5 with short hairs denser on basal central area, but not forming a definite patch. (s) Length of vein r 0.7 times base of second submarginal cell.

Male. Length 8.7-11.3 mm (n=2); length of forewing 6.7-7.6 mm. (t) Color and vestiture similar to those of female, but hairs on face white, hairs on propodeum partly pale, T2 with apical band complete, sternal fringes pale. (u) Proportion of LID to UID 0.77-0.78; AOD to IAD 0.42-0.44. (v) Scape not swollen, similar to that of female, 0.40-0.42 times UID; proportion of first and second flagellomeres together to scape 0.92-0.96. (w) Hairs of fringe on S5 barely surpass posterior margin of sternum. (x) Hind tibia notably swollen, approximately 2.5 times as long as apical width. Middle femur with erect hairs on underside shorter than apical width; hind femur mostly bare on underside. (y) Basal half of dorsum of penis only partly sclerotized; lamella present. Volsella present, hairy.

Material studied. ARGENTINA: SALTA: Holotype female, Rosario de Lerma, II-1983, M. Fritz (MACN); 1 male paratype, Coronel Moldes, 28-XI-1947, R. Golbach (IML). CORDOBA: 1 male paratype, Quebrada Honda, near Uquillo, 7-I-1977, L. Stange (IML).

***Doeringiella crinita* sp. nov.**

(Figs. 17, 41, 64a)

This species resembles *burneisteri* in size and color, but lacks the mesepisternal band, the female S5 is slightly bent down apically, the male scape has long, erect hairs on the plical and the opposite surfaces and the male S5 has a fringe as well developed as that on S4. The female may be confused with *pilicornis*, from which it is distinguished by the non-tuberculiform elevation between the antennal sockets, the apical rather than preapical denticles of the labrum and the shape of the female S5. The specific name refers to the hirsute head of the male.

Female. Length 7.0-9.8 mm (n=4, m=8.4,

holotype 9.8); length of forewing 6.5-8.0 mm ($n=4$, $m=7.3$, holotype 8.0). (a) Integument black; central part of mandible red, tegula brownish, part of first flagellomere and base of second light red. Wings infuscated, darker towards apices. (b) Hairs around antennal sockets pale yellow, vertex and occipital region with erect, brown hairs; whitish hairs on clypeus, labrum, venter of thorax, legs and metasomal sterna; hairs on labrum long; rest of thorax and metasoma with pubescence other than maculations short, brown to grayish; metanotal tuft pale; hairs on propodeum short, restricted to posterolateral angles. (c) Maculations of short, appressed, yellow hairs; pronotal band interrupted medially; notalular spots small; posterior scutal band complete, narrow; scutellar band a small central stripe; some pale hairs below pronotal lobe; T1-T2 with apical bands. (d) Middle of mesepisternum with even punctures, diameter 0.025-0.030 mm, separated by interspaces half the smaller diameter. (e) Upper rugose band of metapostnotum as wide as metanotum; longitudinal impression distinct. Propodeum at sides of metapostnotum microstriated, without punctures. (f) Proportion of LID to UID 0.72-0.74 ($n=4$, $m=0.73$, holotype 0.74); AOD to IAD 0.61-0.66 ($n=4$, $m=0.65$, holotype 0.66). (g) Paraocular and supra-antennal areas forming continuous moderate depression. (h) Frontal carina beginning one to one and one half times ocellar diameter below anterior ocellus, reaching lower level of antennal sockets; elevation between sockets with sides slightly concave. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina complete, angle low. (l) Labrum 0.57-0.63 times as long as wide ($n=4$, $m=0.59$, holotype 0.58); apical denticles separated 0.26-0.31 times labral length ($n=4$, $m=0.29$, holotype 0.26); no upper tubercles nor longitudinal carina, apical point present. (m) Scape 0.36-0.38 times UID ($n=4$, $m=0.37$, holotype 0.36); proportion of first and second flagellomeres together to scape 1.16-1.19 ($n=4$, $m=1.17$, holotype 1.19); no sub-basal angle, cross-section of scape in apical third round. (n) Longitudinal impression of scutellum weak; axilla triangular, projected as small tooth. (o) Supraspiracular carina low, restricted to top of spiracle. (p) Apex of S5 slightly bent down. (q) T5 with short hairs denser on basal central area. Pseudopygidial area 0.65-0.7 times as long as apical width. (s) Length of vein r 0.6-0.75 times base of second submarginal cell.

Male. Length 7.0-10.0 mm ($n=6$, $m=8.8$); length of forewing 6.1-8.1 mm ($n=6$, $m=7.1$). (t) Color and vestiture similar to those of female, but face with long, appressed, silvery hairs; long erect white hairs on labrum, vertex and scape; sternal fringes pale. (u) Proportion of LID to UID 0.75-0.80 ($n=6$, $m=0.77$); AOD to IAD 0.31-0.39 ($n=6$, $m=0.36$). (v) Scape not swollen, 0.42-0.45 times UID ($n=6$, $m=0.44$); proportion of first and second flagellomeres to-

gether to scape 0.9-1.0 ($n=6$, $m=0.95$); plical surface evenly curved, with erect hairs as long as diameter of pedicel. (w) Fringe on S5 with long, apically curled hairs that surpass posterior margin of sternum, similar to fringes on S3-S4; on S2 also a fringe, but less developed. (x) Middle femur with erect hairs on underside longer than apical width; hind femur with short erect hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella present, hairy.

Material studied. Holotype female from ARGENTINA: TUCUMAN: Dpto. Leales, Los Puestos, 11-IV-1967, A. Willink (IML). Paratypes: ARGENTINA: JUJUY: 1 M, Yuto, 30-XI-1953, A. Ogloblin (MLP). SALTA: 1 M, La Viña, III-1985, M. Fritz (MF); 1 M, Tablillas, I-1945, A. Martínez (MLP). TUCUMAN: 5 M, same data as holotype (IML, KU, MACN); 1 M, Dpto. Tafi, Horco Molle, XI-19-1970, C. Porter (IML); 1 M, San Pedro de Colalao, 9-III-1949, Guanuco (IML); 1 F, 1 M, San Pedro de Colalao (MACN); 1 M, Trancas, Tacanas, I-1947, Arnau (IML); 1 M, Tacanas, I-1947 (UFPR). CATA-MARCA: 1 M, Rodeo, 1150 m, 10-I-1959, R. Golbach (IML); 1 M, Las Viñas, 9-XI-1942, A. Ogloblin (MLP). LA RIOJA: 2 F, La Torre, 7-III-1970, Porter and Stange (IML); 1 M, Olta, 25-XI-1941 (MLP).

Doeringiella gayi (Spinola)
(Figs. 7, 11, 20, 43)

Epeolus gayi Spinola, 1851: 188-189. Female and male from Chile, Coquimbo, Provincias del Norte (Types not examined). Claude-Joseph, 1926: 266-267. Michener, 1953: 1072.

Triepolus fazi Cockerell, 1925: 493-494. Lectotype male, by present designation, from Chile Central, A. Faz (AMNH, examined) **Synon. nov.**

Triepolus gayi: Cockerell, 1925: 494.

Doeringiella (Orfilana) gayi: Moure, 1954: 267-268.

This common Chilean species is easily distinguished by its color pattern of creamy-yellowish hairs. The apical bands on T1 and T2 are expanded laterally, leaving a central, semicircular black area on T1. The mesepisternal band is of long, erect hairs. The genitalia associate *gayi* with *tricolor* and *speciosa*.

The specimen of *fazi* preserved in the AMNH agrees perfectly with *gayi*; the color differences mentioned by Cockerell are due to dirt. Since it is not evident from the description how many specimens were studied by Cockerell and there are specimens with the same label in the USNM and the BMNH, this specimen is now labelled lectotype; it was labelled as "type" by Cockerell.

Female. Length 8.0-11.7 mm ($n=8$, $m=10.5$); length of forewing 6.6-8.8 mm ($n=8$, $m=8.1$).

(a) Integument black, except the following light red: labrum, base of mandible, antenna, pronotal lobe, tegula, femora in part, tibiae and tarsi. Wings slightly infuscated with dark apical band; veins reddish to brown. (b) Hairs cream-colored, long and erect around antennal socket, labrum, vertex, occipital region and propodeum, scattered on most of thorax; short and appressed on clypeus, gena and legs beyond coxae; venter of thorax and coxae with white appressed hairs; pubescence of metasoma other than maculations black on terga, grayish on sterna. (c) Maculations of cream-colored hairs but of different length; pronotal band and round notaular spots with semiappressed hairs; entire mesepisternal band, bunch of hairs behind pronotal lobe and spot on scutum before tegula of long, erect hairs; posterior scutal, scutellar and metanotal bands complete, of short appressed hairs, scutellar band usually prolonged basally along longitudinal impression; maculations of metasoma of very short, appressed hairs; T1 with apical band greatly expanded laterally, leaving a semicircular black area; bands on T2-T4 decreasingly expanded laterally, sometimes interrupted medially; T5 with lateral spot. (d) Middle of mesepisternum with punctures 0.045-0.06 mm in diameter, interspaces irregular, some scattered interspaces as wide as punctures. On scutum punctures even, smaller. (e) Upper sculptured band of metapostnotum as wide as metanotum, punctate; longitudinal impression distinct. Propodeum at sides of metapostnotum with strong punctures and hairs. (f) Proportion of LID to UID 0.70-0.76 ($n=8$, $m=0.73$); AOD to IAD 0.67-0.70 ($n=8$, $m=0.68$). (g) Paraocular area between antennal socket and upper ocellar third moderately swollen. (h) Frontal carina beginning one ocellar diameter below anterior ocellus and surpassing lower level of antennal sockets; elevation between sockets with sides more or less straight. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Preoccipital carina complete. (l) Labrum 0.57-0.64 times as long as wide ($n=8$, $m=0.59$); upper tubercles moderate to strong, sometimes prolonged apicad by a carina; apical denticles separated by 0.28-0.37 times labral length ($n=8$, $m=0.32$); small apical point present. (m) Scape 0.33-0.37 times UID ($n=8$, $m=0.35$); proportion of first and second flagellomeres together to scape 1.0-1.13 ($n=8$, $m=1.07$); sub-basal angle present. (n) Longitudinal impression of scutellum distinct; axilla triangular, projecting as short tooth. (o) Supraspiracular carina strong, concave, prolonged along posterolateral angle of propodeum as low ridge. (p) Apex of S5 bent down. (q) T5 with short hairs denser on basal central area, but not forming a definite patch. Pseudopygidial

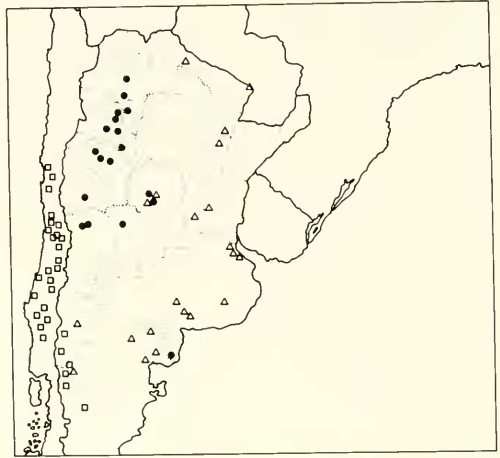


FIG. 11. Distributions of *Doeringiella crassicornis* (dots), *D. gayi* (squares) and *D. holmbergi* (triangles).

area 0.75-0.80 times as long as apical width, with apical band of slender hairs. (s) Length of vein r 0.7-0.8 times base of second submarginal cell.

Male. Length 9.0-10.6 mm ($n=5$, $m=10.2$); length of forewing 7.0-8.8 mm ($n=5$, $m=8.1$). (t) Color and vestiture similar to those of female, but more hirsute, face with silvery appressed hairs, T1-T6 banded, sternal fringes pale. (u) Proportion of LID to UID 0.76-0.80 ($n=5$, $m=0.78$); AOD to IAD 0.42-0.50 ($n=5$, $m=0.45$). (v) Scape not swollen, 0.38-0.42 times UID ($n=5$, $m=0.40$); proportion of first and second flagellomeres together to scape 0.90-1.03 ($n=5$, $m=0.95$); sub-basal angle strong. (w) Fringe on S5 with straight hairs that barely surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside as long as apical width; hind femur with erect hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella present, hairy.

Material studied. 64 F and 38 M from ARGENTINA: provinces of Neuquén, Rio Negro and Chubut; from CHILE: provinces of Coquimbo, Aconcagua, Valparaíso, Santiago, O'Higgins, Curicó, Talca, Maule, Linares, Nuble, Concepción, Malleco, Bio Bio and Cautín (Fig. 11). Collection dates are from August to February.

Doeringiella gigas (Spinola) (Figs. 15, 27, 47, 64b)

Epeolus gigas Spinola, 1851: 187-188. Female and male from Chile, Santa Rosa and Coquimbo (Types not examined). Claude-Joseph, 1926: 265.

Doeringiella (Doeringiella) gigas: Moure, 1954: 264.

This species belongs in the *bizonata* group. It is easily recognized by the hirsute body, the extensive creamy-yellowish maculations on the metasoma, the light red legs and flagellum, the medially humped labrum with apical denticles widely separated and the male S5 with the fringe reduced medially. I have not seen type material, but there is no doubt about the identity of this characteristic Chilean species.

Female. Length 11.3-13 mm ($n=6$, $m=12.5$); length of forewing 8.5-10.7 mm ($n=6$, $m=9.9$). (a) Integument black, except the following light red: labrum, base of mandible, antenna, pronotal lobe, tegula and legs beyond trochanters; femora, labrum and scape vary from light red to completely black. Wings slightly infuscated with dark apical band; veins brown. (b) Body hirsute; appressed hairs on face, labrum, gena and most of legs; rest of head, most of thorax and propodeum with long erect hairs; metasoma with hairs other than maculations black on terga, cream-colored on sterna. (c) Maculations of cream-colored hairs of variable length; mesepisternal band of long hairs partly confounded with general pilosity of mesopleura; pronotal band complete; notaular spots united forming cuneiform patch of semiappressed hairs; posterior scutal, scutellar and metanotal bands complete, of short appressed hairs; scutellar band prolonged basally along longitudinal impression; maculations on metasoma of very short appressed hairs, on T1 enclosing central transverse black oval; T2 with apical band greatly expanded laterally, T3-T4 with apical bands; T5 with lateral spot. (d) Middle of mesepisternum with punctures 0.035-0.05 mm in diameter, interspaces narrow. (e) Upper sculptured band of metapostnotum shorter than metanotum; longitudinal impression strong. (f) Proportion of LID to UID 0.70-0.75 ($n=6$, $m=0.73$); AOD to IAD 0.66-0.73 ($n=6$, $m=0.69$). (g) Pseudoocular area moderately swollen. (h) Frontal carina keeled, beginning one ocellar diameter below anterior ocellus, ending above lower level of antennal sockets in a small elongated shiny spot; elevation between sockets with sides slightly convex. (i) Pseudoocular carina reaching lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina absent, surface behind ocelli steep. (l) Labrum 0.60-0.69 times as long as wide ($n=6$, $m=0.64$); no upper tubercles, center of labrum convex; apical denticles separated by 0.40-0.48 times labral length ($n=6$, $m=0.45$); apical point present. (m) Scape 0.39-0.45 times UID ($n=6$, $m=0.42$); proportion of first and second flagellomeres together to scape 0.78-0.88 ($n=6$, $m=0.82$); sub-basal angle weak, plical surface on apical third flat to slightly

concave. (n) Scutellum bigibbous with strong longitudinal impression; axilla projected as strong tooth. (o) Supraspiracular carina strong, concave, continued along postero-lateral angle of propodeum, ending in moderate to strong tubercle. (p) Apex of S5 not bent down. (q) T5 without basal patch of hairs. Pseudopygidial area poorly defined, 0.3-0.4 times as long as wide; of slender hairs. (s) Length of vein r 0.8-0.9 times base of submarginal cell.

Male. Length 11.5-15.5 mm ($n=5$, $m=12.9$); length of forewing 9.1-10.5 mm ($n=5$, $m=9.8$). (t) Color and vestiture similar to those of female, but more hirsute, face with white appressed hairs, T6 apically banded, sternal fringes pale. (u) Proportion of LID to UID 0.74-0.80 ($n=5$, $m=0.78$); AOD to IAD 0.38-0.46 ($n=5$, $m=0.42$). (v) Scape swollen, 0.53-0.56 times UID ($n=5$, $m=0.55$), as long as the basal 3.5-3.75 flagellomeres together; proportion of first and second flagellomeres together to scape 0.58-0.61 ($n=5$, $m=0.59$); cavity wider than entrance hole. (w) Sternal fringes of straight, dense hairs, fringe on S5 medially reduced, barely surpassing posterior margin of sternum. (x) Middle femur with erect hairs on underside as long as apical width; hind femur with dense, erect hairs. (y) Dorsal edges of penis parallel, continuously sclerotized; without lamella. Volsella indicated by faint sclerotization.

Material studied. CHILE: 1 F, 1912, H. Flam (BMNH); 2 M, 1902, P. Herbst (MCZ). COQUIMBO: 1 F, La Serena, 29-XII-1939 (BMNH); 1 F, La Serena, XII-1946 (CAS); 1 F, 1 M, La Serena, 14-I-1952 and 8-XII-1957, Wagenknecht (MACN). VALPARAISO: 1 F, Marga Marga, 25-I-1921, P. Herbst (AMNH); 1 M, El Salto, XII-1901, P. Herbst (MCZ); 1 F, 3 M, Reñaca, I-1933, Reed (CAS). BIO BIO: 1 F, Bio Bio, I-1953, Fritz (MLP); 1 M, Los Angeles, III-1949, Fritz (MLP). MALLECO: 1 M, Angol, 20-I-1927 (AMNH).

Doeringiella guttata sp. nov.
(Figs. 3, 21, 29)

This is the only *Doeringiella* species that has the integument of the head and thorax with extensive red markings. Usually the labrum, the clypeus and the supraclypeal area, part of the pronotum, the scutellum and the metanotum are red. It is also characterized by the presence of short, appressed hairs on the metapostnotum and the propodeum. The specific name refers to the rounded pseudopygidial area in the female.

Female. Length 8.0-9.3 mm ($n=6$, $m=8.53$, holotype 8.0); length of forewing 6.1-7.0 mm ($n=6$, $m=6.4$, holotype 6.2). (a) Integument black, except the following red: base of mandible, labrum, clypeus, supraclaypal area, scape, pedicel, flagellomeres 1-3, pronotal lobe (entire pronotum in some specimens), scutum before tegula, tegula, scutellum, metanotum and legs; metapostnotum and propodeum may be black or reddish (reddish in holotype); coxae vary from black to red (black in the holotype). Wings slightly infuscated with dark apical band, veins brown. (b) Hairs around antennal sockets pale yellow; body in general with very short appressed whitish hairs, dense on propodeum and lateral portion of metapostnotum, brown on metasomal terga. (c) Maculations pale yellow, of short appressed hairs; pronotal band complete; notaular spots small; posterior scutal and metanotal bands complete; scutellar band central and lateral spots; mesepisternal band from level of scrobe to base of middle coxa; T1-T2 with apical bands; T3-T4 apically and T5 laterally with poorly defined bands. (d) Middle of mesepisternum with punctures 0.02-0.03 mm, interspaces shiny, 1/3 to 1/4 diameter of punctures. (e) Upper sculptured band of metapostnotum shorter than metanotum, punctured; longitudinal impression weak. Propodeum at sides of metapostnotum with dense punctures bearing small hairs. (f) Proportion of LID to UID 0.66-0.71 ($n=6$, $m=0.68$, holotype 0.67); AOD to IAD 0.65-0.69 ($n=6$, $m=0.67$, holotype 0.68). (g) Paraocular and supra-antennal areas forming continuous moderate depression. (h) Frontal carina sharp, beginning one ocellar diameter below anterior ocellus and reaching lower level of sockets; elevation between sockets with sides concave. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Preoccipital carina complete, sharp. (l) Labrum 0.60-0.66 times as long as wide ($n=6$, $m=0.62$, holotype 0.64); upper tubercles moderate; apical denticles separated by 0.27-0.35 times labral length ($n=6$, $m=0.37$, holotype 0.35); apical point present. (m) Scape 0.34-0.37 times UID ($n=6$, $m=0.36$, holotype 0.34); proportion of first and second flagellomeres together to scape 1.04-1.12 ($n=6$, $m=1.07$, holotype 1.09); sub-basal angle weak, apical third of plical surface not concave. (n) Longitudinal impression of scutellum weak; axilla triangular, projected as short tooth. (o) Supraspiracular carina low, prolonged as ridge along posterolateral angle of propodeum. (p) Apex of S5 bent down. (q) T5 with basal central patch of denser hairs. Pseudopygidial area oval, longer than wide. (s) Length of vein r 0.7-0.8 times base of second submarginal cell.

Male. Length 6.5-11.0 mm ($n=2$); length of forewing 5.9-7.7 mm. (t) Color and vestiture similar to those of female, face with silvery hairs, sternal fringes pale. (u) Proportion of LID to UID 0.70-0.74; AOD to IAD 0.41-0.43. (v) Scape not swollen, similar to that of female, 0.44-0.46 times UID; proportion of first and second flagellomeres

together to scape 0.87-0.96. (w) Fringe on S5 with curled hairs that surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside longer than apical width; hind femur also with erect hairs. (y) Basal half of dorsum of penis only partly sclerotized; lamella present. Volsella present, hairy.

Material studied. ARGENTINA: Holotype female, LA RIOJA, 7 km S Villa Casana, 10-XII-1971, Porter and Stange (IML). Paratypes: SALTA: 1 M, La Viña, I-1968, M. Fritz (MF). TUCUMAN: 1 F, Tucumán city, I-1947 (IML); 36 F, 11 km North Dique Cadillal, 18-XI-1983, R. B. Roberts (Roberts, KU, MACN); 1 F, Horco Molle, 15 km W Tucumán, 500 m, 5-XI-1983, R. B. Roberts (Roberts). SANTIAGO DEL ESTERO: 1 F, Los Tigres, 11-I-1970, R. Golbach (IML); 1 F, R. Salado, 10 km Colonia Dora, 17-25-XI-1979, C. and M. Vardy (BMNH). LA RIOJA: 1 F, 26-XI-1941 (MLP); 2 F, Los Tambillos, 29-XI-1977, Willink and Fidalgo (IML). CORDOBA: 1 F, 27-XII-1970, M. Fritz (UFPR). SAN JUAN: 1 F, Albardón, 12-XII-1971, Porter and Stange (IML). SAN LUIS: 1 M, San Jerónimo, XI-1972, G. Williner (MACN). RIO NEGRO: 2 F, Bal. Las Grutas, 14-I-1968, J. and L. Stange (IML, KU); 1 F, San Antonio Oeste, M. Fritz (MF).

Doeringiella hebes sp. nov.

(Fig. 37)

This species is closely allied to *centuncula*, from which it is distinguished by the rounded axilla, the black scutellum and the pattern of maculation of the metasoma. The male is not known but is expected to have a swollen scape. The specific name, "blunt" in Latin, refers to the shape of the axilla.

Female. Length 8.6-9.7 mm ($n=3$, $m=9.3$, holotype 9.6); length of forewing 6.6-7.3 mm ($n=3$, $m=7.0$, holotype 7.3). (a) Integument black, except base of mandible, tegula and legs beyond trochanters red; hind femur partly red. Wings infuscated, darker apically; veins dark brown. (b) White, appressed hairs on labrum, around antennal socket, on legs and sternal region of thorax; most of head, thorax and metasoma with pubescence other than maculations short and dark; metanotal tuft dark; propodeum covered with long, erect, dark hairs. (c) Maculations of short, appressed, white hairs; pronotal band interrupted medially; notaular spots elongate, well separated; posterior scutal band reduced to small central spot; scutellar band narrow; metanotal band interrupted medially; mesepisternal band poorly marked below pronotal lobe; T1 broadly maculate at base, sides and apex, leaving a central black patch; T2-T4 with apical bands, that on T4 interrupted medi-

ally; T5 with lateral spot. (d) Mesepisternum below scrobe with transverse band of close punctures 0.015 mm in diameter, below this band punctures of 0.025-0.040, mm with wide interspaces. (e) Upper sculptured band of metapostnotum as wide as metanotum, rugoso punctured; longitudinal impression weak. Propodeum at sides of metapostnotum with dense punctures and hairs. (f) Proportion of LID to UID 0.74-0.81 ($n=3$, $m=0.77$, holotype 0.74); AOD to IAD 0.72-0.76 ($n=3$, $m=0.75$, holotype 0.76). (g) Paraocular area not depressed and supra-antennal area slightly so, as in species of *Tripeolus*. Vertex raised, lateral ocelli above level of top of eyes. (h) Frontal carina beginning half ocellar diameter below anterior ocellus, reaching lower level of antennal sockets; elevation between sockets with sides straight. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina absent, genal sector weak. (l) Labrum 0.54-0.58 times as long as wide ($n=3$, $m=0.56$, holotype 0.58); no upper tubercles; apical denticles separated by 0.24-0.28 times labral length ($n=3$, $m=0.27$, holotype 0.24); apical point and longitudinal carina present. (m) Scape 0.36-0.37 times UID ($n=3$, $m=0.363$, holotype 0.36); proportion of first and second flagellomeres together to scape 0.92-1.0 ($n=3$, $m=0.95$, holotype 0.92); sub-basal angle weak. (n) Longitudinal impression of scutellum weak; axilla rounded, not produced at all. (o) Supraspiracular carina small, restricted to top of spiracle. (p) Apex of S5 narrow, bent down. (q) Base of T5 with sharply defined patch of dense hairs. Pseudopygidial area 0.8 as long as apical width, of slender hairs. (s) Length of vein r 0.6-0.66 times base of second submarginal cell.

Material studied. PERU: Holotype female, Canta (Departamento Lima), 2800 m, V-1951, Weyrauch, WKW 5984 (IML); 2 female paratypes, same data (KU, IML).

Doeringiella holmbergi (Schrottky)
(Figs. 57, 66, 75)

Doeringiella variegata Holmberg, 1886: 279. Lectotype female, by present designation, no locality label (MACN, examined). Dalla Torre, 1896: 335; Schrottky, 1903: 184.

Epeolus holmbergi Schrottky, 1913: 265. New name for *D. variegata* Holmberg, not *Epeolus variegatus* (Linnaeus). *Tripeolus pruinosus* Cockerell, 1917: 478-479. Holotype female, from Argentina, Carcarañá (USNM, examined). Synonymy by Moure, 1955: 126.

Doeringiella (Orfilana) variegata: Moure, 1954: 267; 1955: 126.

There is only one specimen of this species left in the Holmberg collection, preserved in the

MACN. It bears a handwritten label by Holmberg "*Doeringiella variegata*", but no other labels. The head is in poor condition. This female is presumed to belong to the original series and is therefore designated lectotype. According to the article 59(b) of the International Code of Zoological Nomenclature the valid name is the replacement name proposed by Schrottky, when he transferred the species to *Epeolus*.

D. silvatica Holmberg, 1886, described from Formosa (Argentina), was synonymized by Moure (1954) with *holmbergi*, but some points of the original description of *silvatica* disagree. I have not seen specimens of *holmbergi* less than 9 mm long; Holmberg says 7 mm for *silvatica*. Specimens of *holmbergi* from northern Argentina (Chaco, Formosa) follow the same color pattern as specimens from Buenos Aires: the apical band of T1 is expanded laterally, the apical bands of T2-T3 are present (the band on T3 is less defined), and the apical band on T4 is absent. The description of *silvatica* indicates apical bands present on T1-T4, that on T1 not expanded laterally. Another species, *burmeisteri*, better fits Holmberg's description of *silvatica*. I prefer to leave the problem pending until more material from Formosa is collected.

Males of this species can be confused with those of *similaris*, specially in northern Patagonia (Rio Negro, Neuquén), where specimens of *holmbergi* have dark legs and antennae. The structure of the penis and the gonostylus will help to distinguish the two species.

Female. Length 9.0-11.5 mm ($n=8$, $m=10.3$); length of forewing 6.6-8.1 mm ($n=8$, $m=7.4$). (a) Integument black; base of mandible, scape, pedicel, pronotal lobe, tegula and legs dark red to black; first flagellomere light red. Wings slightly infuscated with dark apical band. (b-c) As described for *burmeisteri* but mesepisternal band shorter, from level of scrobe to base of middle coxa; scutellar band as lateral and central spots; apical band on T1 expanded laterally or not, on T2 transverse, distinct, on T3 less defined, paler, on T4 usually absent. (d) Middle of mesepisternum with even punctures, diameter 0.03-0.04 mm, separated by 1/3 to 1/4 of those diameters; on scutum closer and smaller. (e) Upper sculptured band of metapostnotum shorter than metanotum, rugoso-punctate. Propodeum at sides of metapostnotum bare, without punctures. (f) Proportion of LID to UID 0.70-0.75 ($n=8$, $m=0.73$); AOD to IAD 0.60-0.68 ($n=8$, $m=0.62$). (g) Paraocular and supra-antennal areas forming continuous depression. (h) Frontal carina beginning half ocellar diameter below anterior ocellus, reaching lower level of antennal sockets, lowest sector blunt; elevation between sockets with sides concave. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina usually obliterated near angle,

in some specimens weakly indicated. (l) Labrum 0.56-0.61 times as long as wide ($n=8$, $m=0.59$); upper tubercles present, frequently prolonged apically by a carina; apical denticles separated by 0.27-0.35 times labral length ($n=8$, $m=0.30$); apical point present. (m) Scape 0.34-0.37 times UID ($n=8$, $m=0.36$); proportion of first and second flagellomeres together to scape 1.0-1.07 ($n=8$, $m=1.03$); sub-basal angle present, section of plical surface on apical third flat or slightly concave. (n) Longitudinal impression of scutellum weak; axilla triangular, produced as short tooth. (o) Supraspiracular carina concave, prolonged along postero-lateral angle of propodeum as low ridge. (p) Apex of S5 bent down. (q) T5 with basal central patch of dense hairs. Pseudopygidial area 0.85-0.9 times as long as apical width. (s) Length of vein r 0.8-1.0 times base of second submarginal cell.

Male. Length 9.2-12.0 mm ($n=5$, $m=10.4$); length of forewing 6.1-8.5 mm ($n=5$, $m=7.1$). (t) Color and vestiture similar to those of female, but face and ventral surface of thorax with silvery hairs; T1-T2 with pale yellow band well marked, on T3-T6 apical bands whitish, more or less distinct depending on specimens; sternal fringes pale. (u) Proportion of LID to UID 0.79-0.81 ($n=5$, $m=0.80$); AOD to IAD 0.38-0.44 ($n=5$, $m=0.40$). (v) Scape not swollen, 0.43-0.47 times UID ($n=5$, $m=0.44$); proportion of first and second flagellomeres together to scape 0.81-0.94 ($n=5$, $m=0.89$); sub-basal angle strong and apical third of plical surface usually concave. (w) Fringe on S5 with straight hairs that barely surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside subequal to apical width; hind femur with semiappressed hairs on basal 1/2 to 2/3. (y) Dorsal edges of penis parallel, continuously sclerotized, without lamella. Volsella hairy.

Material studied. 71 F and 174 M from ARGENTINA: provinces of Formosa, Chaco, Córdoba, Santa Fe, Entre Rios, Buenos Aires, La Pampa, Rio Negro and Neuquén (Fig. 11). Collection dates are from November to April.

Doeringiella indecisa Holmberg

(Figs. 51, 62)

Doeringiella indecisa Holmberg, 1886b: 281. Types from Formosa, Argentina (lost). Dalla Torre, 1896: 335; Schrottky, 1903: 184.

Epeolus indecissus: Schrottky, 1913: 264.

This species is the only *Doeringiella* that has the transverse band on T1 preapical, a pattern that is also present in some South American *Triepeolus*. The males have the scape swollen, with a unique shallow cavity. This combination of characters makes the species' identity certain, in spite of the loss of the types. The female is further charac-

terized by having the propodeum at the sides of the metapostnotum bare, the S5 not bent down apically and the scape long, 0.43-0.48 times UID.

Female. Length 8.2-10.2 mm ($n=8$, $m=9.2$); length of forewing 6.6-8.2 ($n=8$, $m=7.1$). (a) Integument black, in some specimens legs and metasoma partly brownish; first flagellomere, base of second and tibial spurs light red. Wings ferruginous, infuscated towards apex. (b) Hairs around antennal socket appressed, yellow; hairs erect, brown on supra-antennal area, vertex and occipital region; sparse, white hairs on clypeus, labrum and legs, denser on tibiae and hind coxa; pubescence on thorax and metasoma other than maculations short, white to grayish; metanotal tuft pale; posterolateral angle of propodeum with short appressed white hairs. (c) Maculations white to yellowish, of short appressed hairs; pronotal band interrupted medially; notaular spots rounded; posterior scutal, scutellar and metanotal bands complete; mesepisternal band present, poorly defined below pronotal lobe; T1 with band widely separated from apical margin, in some specimens medially interrupted; T2-T3 with apical bands complete, on T3 medially separated from apical margin; T4 with interrupted apical band. (d) Middle of mesepisternum with punctures 0.025-0.035 mm, interspaces 1/3 to 1/2 of those diameters. (e) Upper rugose band of metapostnotum as wide as metanotum, rugosopunctate; longitudinal impression weak. Propodeum at sides of metapostnotum bare, no punctures. (f) Proportion of LID to UID 0.75-0.85 ($n=8$, $m=0.79$); AOD to IAD 0.50-0.62 ($n=8$, $m=0.56$). (g). Paraocular and supra-antennal areas forming continuous moderate depression. (h) Frontal carina high, sharp, beginning close to anterior ocellus, ending below lower level of antennal sockets; elevation between sockets with sides slightly concave. (i) Paraocular carina ending below lower tangent of anterior ocellus. (j) Preoccipital carina poorly indicated near angle. (l) Labrum 0.57-0.65 times as long as wide ($n=8$, $m=0.61$); upper tubercles moderate or absent; apical denticles separated 0.30-0.39 times labral length ($n=8$, $m=0.36$); apical point present. (m) Scape 0.43-0.48 times UID ($n=8$, $m=0.46$); proportion of first and second flagellomeres together to scape 0.79-0.87 ($n=8$, $m=0.84$); sub-basal angle present, section of plical surface on apical third flat. (n) Longitudinal impression of scutellum weak; axilla triangular, projected as short tooth. (o) Supraspiracular carina strong, concave, continued along postero-lateral angle of propodeum as low ridge. (p) Apex of S5 not bent down. (q) T5 with short hairs denser on central basal area, but not forming a definite patch.

Pseudopygidial area 0.8 times as long as apical width. (s) Length of vein r 0.8-1.0 times base of second submarginal cell.

Male. Length 8.5-10.3 mm ($n=5$, $m=9.3$); length of forewing 6.6-9.5 mm ($n=5$, $m=7.5$). (t) Color and vestiture similar to those of female; face and venter of thorax with long appressed white hairs; T2-T6 with apical bands complete; sternal fringes pale. (u) Proportion of LID to UID 0.81-0.87 ($n=5$, $m=0.83$); AOD to IAD 0.34-0.42 ($n=5$, $m=0.37$). (v) Scape swollen, 0.56-0.60 times UID ($n=5$, $m=0.59$), as long as the basal 3.25-3.5 flagellomeres together; proportion of first and second flagellomeres together to scape 0.58-0.60 ($n=5$, $m=0.59$); cavity completely exposed. (w) Fringe on S5 sparse, hairs surpassing posterior margin of sternum. (x) Middle femur with erect hairs on underside subequal to apical width; hind femur with semiappressed hairs on basal 2/3. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Vol-sella present, hairy.

Material studied. ARGENTINA: SALTA: 1 F, La Viña, III-1984, M. Fritz (MF). CORDOBA: 7 F, 13 M, Depto. Calamuchita, El Sauce, XII-1938, M.J. Viana (MACN); 2 F, 1 M, same data (KU); 1 F, Agua de Oro, I-1940, J. De Carlo (KU); 1 F, Argüello, De Carlo and Viana (KU). SANTA FE: 1 M (MACN).

Doeringiella joergenseni (Friese)
(Figs. 25, 70, 74)

Epeolus jörgenseni Friese, 1908: 84. Lectotype female, by present designation, from Argentina, Tucumán, Steinbach (ZMB, examined). Jörgensen, 1909: 219, 1912a: 140, 1912b: 315.

Epeolus joergenseni: Schrottky, 1913: 264. Emend.

Doeringiella (Orfhlana) joergenseni: Moure, 1954: 269.

Both sexes of this species are readily distinguished by the hairy scape; the dense, erect hairs are distributed on the plical surface and also on the opposite surface of the scape. The thorax has no maculations, and the metasomal T1-T4 may have narrow apical bands; specimens that lack those bands are wholly black. Further characters are the lack of the sub-basal angle of the scape and the metapostnotum and propodeum separated by a more or less distinct sulcus.

Female. Length 8.7-12.3 mm ($n=8$, $m=10.9$, lectotype 12.0); length of forewing 7.2-9.2 ($n=8$, $m=8.5$, lectotype 8.5). (a) Integument black; center of mandible and first flagellomere reddish. Wings yellowish near bases, darker towards apex. (b) With grayish to brown hairs on face, labrum, most of thorax and legs; long, erect, brown hairs

on vertex, occipital area, metanotal tuft and propodeum. Scape with long, erect hairs on plical surface as long as half apical width, also erect hairs on opposite surface. (c) No maculations on thorax. Lectotype with T1-T3 with apical yellow bands narrow, T4 with apical band poorly indicated; northern specimens (Jujuy) with no bands, entire metasoma black; southern specimens usually with 4 complete, well developed bands. (d) Middle of mesepisternum with punctures coarse, diameter 0.035-0.05 mm, interspaces narrow; punctures more separated on scutum and scutellum. (e) Metapostnotum with upper rugose band of strong punctures, as wide as metanotum; border with propodeum sharply indicated by sulcus. Propodeum at sides of metapostnotum with scattered punctures bearing long hairs in lectotype, some specimens without such punctures and hairs. (f) Proportion of LID to UID 0.71-0.77 ($n=8$, $m=0.74$, lectotype 0.74); AOD to IAD 0.65-0.81 ($n=8$, $m=0.72$, lectotype 0.65). (g) Supra-antennal and paraocular areas moderately depressed. (h) Frontal carina sharp, beginning half ocellar diameter below anterior ocellus and slightly surpassing lower level of antennal sockets, lowest sector blunt; elevation between sockets with sides slightly convex. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Upper sector of preoccipital carina near angle indistinct due to punctation. (l) Labrum 0.56-0.65 times as long as wide ($n=8$, $m=0.61$, lectotype 0.56); upper two-thirds flat, apex bent forwards; no upper tubercles nor longitudinal carina; apical denticles separated by 0.17-0.28 times labral length ($n=8$, $m=0.22$, lectotype 0.23); apical point present. (m) Scape 0.36-0.40 times UID ($n=8$, $m=0.38$, lectotype 0.38); proportion of first and second flagellomeres together to scape 1.06-1.17 ($n=8$, $m=1.13$, lectotype 1.15); plical surface evenly arched, without sub-basal angle. (n) Longitudinal impression of scutellum weak; axilla triangular, produced as moderate tooth. (o) Supraspiracular carina short, restricted to top of spiracle. (p) Apex of S5 bent down. (q) T5 with central basal patch present, of slender, erect hairs. Pseudopygidial area 0.6-0.7 times as long as apical width. (s) Length of vein r 0.6-0.7 times base of second submarginal cell.

Male. Length 8.6-11.5 mm ($n=5$, $m=10.2$); length of forewing 7.7-8.5 mm ($n=5$, $m=8.2$). (t) Color and vestiture similar to those of female; face and venter of thorax with white appressed hairs; metasomal terga with six apical bands, fewer, or none. Hairs on scape longer than in female, as long as apical width of scape. (u) Proportion of LID to UID 0.74-0.81 ($n=5$, $m=0.79$); AOD to IAD 0.28-0.33 ($n=5$, $m=0.30$). (v) Scape not swollen, similar to that of female, 0.44-0.49 times UID ($n=5$, $m=0.46$); proportion of first and second flagellomeres together to scape 0.91-1.0 ($n=5$, $m=0.95$). (w) Fringe on S5 with long curled hairs that surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside shorter than apical

width; hind femur with short appressed hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella present, hairy.

Material studied. ARGENTINA: JUJUY: 2 F, 2 M, La Quiaca, 3400 m, II-1960, R. Golbach (IML); 1 M, Tilcara, 25-I-1948, Monrós and Willink (IML); 1 F, Humahuaca, 24-I-1973, L. Stange (IML); 1 F, Tilcara, V-1986, M. Fritz (MF). SALTA: 1 M, paralectotype, 1200 m, 10-11-1905, Steinbach (ZMB); 1 F, 1 M, Tacuil, 2400 m, 16-31-XII-1968 and 22-II-1967, A. Willink (IML); 1 F, Chicoana, La Gotera, II-1987, M. Fritz (MF). TUCUMAN: 1 F, Tafí del Valle road, 1550 m, 18-III-1974, C. Vardy (BMNH); 1 F, Tafí del Valle, 2000 m, 15-II-1984, A. Willink (IML); 1 M, San Pedro de Colalao, Dpto. Trancas, II-1951 (KU); 3 F, 1 male, Tafí del Valle, El Mollar, I-1986, J. L. Neff (CTMI). CATAMARCA: 1 M, Minas Capillitas, 2600 m, 23-XII-1973, J. L. Neff (CTMI); 1 F, El Suncho, 1850 m, 8-18-II-1957, R. Golbach (IML); 2 females, El Suncho, 18-III-1956, N. Kusnezov (IML). LA RIOJA: 2 F, Guanchín, 15-XII-1971, Porter and Stange (IML). CORDOBA: 1 F, La Falda, 26-II-1966, A. Willink (IML). SAN JUAN: 1 F, El Leoncito, 2400 m, I-1966, Willink and Stange (IML); MENDOZA: 4 F, 3 M, Cacheuta (MACN); 2 F, Tupungato, 25-II-1961, A. Willink (IML); 1 M, Potrerillos, 100 m, 20-I-1947, A. Willink (IML).

Doeringiella oblata sp. nov.
(Figs. 34, 69)

This remarkable species has some unique features: the clypeus is flat, the supraclypeal area is depressed, the forewing has a broad, dark band along the costal margin, and the notaular spots are absent. Other useful characters to distinguish *oblata* are the short, appressed hairs on the propodeum at the sides of the metapostnotum and S5 of the female which is not bent down apically. The specific name refers to the flat face.

Female. Length 9.1-12.5 mm (n=8, m=10.8, holotype 10.5); length of forewing 8.4-10.1 mm (n=8, m=9.1, holotype 9.5). (a) Thorax black; head and metasoma brownish to black; legs brownish; center of mandible, labrum, scape, pedicel, basal flagellomere, pronotal lobe and tegula light red. Forewing with broad, dark band along costal margin, remainder of wings hyaline, veins dark brown. (b) With brown to grayish hairs, appressed on face, erect on vertex, short and paler on legs and metasoma; thorax and metasomal sterna with sparse stiff pale hairs; metanotal tuft pale; propodeum densely covered with short appressed hairs, similar hairs on lateral portion of metapostnotum. (c) Maculations of short, appressed, pale yellow hairs; pronotal, posterior scutal and metanotal bands complete; mesepisternal band from level of scrobe to base of middle coxa; T1 with apical band, T2 with apical

band narrow and broadly interrupted medially, T3 with apical band centrally arched, separated from apical margin. (d) Middle of mesepisternum with small punctures, 0.025-0.030 mm, interspaces 1/4 to 1/5 of those diameters. (e) Upper sculptured band of metapostnotum wider than metanotum, of small dense punctures. Propodeum at sides of metapostnotum punctured, punctures hardly visible due to dense appressed hairs. (f) Proportion of LID to UID 0.66-0.70 mm (n=8, m=0.68, holotype 0.67); AOD to IAD 0.74-0.80 (n=8, m=0.77, holotype 0.74). (g) Supra-antennal depression shallow due to flattened face. (h) Frontal carina sharp, low, beginning one ocellar diameter below anterior ocellus, ending above lower level of antennal sockets; no elevation between sockets. (i) Paraocular carina ending just below lower tangent of anterior ocellus. (j) Preoccipital carina complete. (k) Clypeus flat, supraclypeal area depressed, as seen laterally not protruding in front of eyes. (l) Labrum 0.52-0.62 times as long as wide (n=8, m=0.57, holotype 0.52); upper tubercles moderate; apical denticles separated by 0.32-0.38 times labral length (n=8, m=0.34, holotype 0.38); no apical point, between apical denticles emarginate. (m) Scape 0.37-0.43 times UID (n=8, m=0.40, holotype 0.40); proportion of first and second flagellomeres together to scape 0.97-1.04 (n=8, m=1.02, holotype 1.03); sub-basal angle weak, scape basally compressed; plical surface on apical third flat. (n) Longitudinal impression of scutellum weak; axilla rounded, with small tooth scarcely projecting. (o) Supraspiracular carina a small tubercle on top of spiracle. (p) Apex of S5 not bent down. (q) T5 with short hairs denser on basal central area, but not forming definite patch. Pseudopygidial area as long as wide, rounded. (s) Length of vein r 0.7-0.85 times base of second submarginal cell.

Male. Length 8.2-13 mm (n=5, m=10.3); length of forewing 8.0-10.2 mm (n=5, m=9.0). (t) Color and vestiture similar to those of female except white hairs on face and sometimes a subapical band on T4; sternal fringes pale. (u) Proportion of LID to UID 0.74-0.80 (n=5, m=0.76); AOD to IAD 0.47-0.53 (n=5, m=0.49). (v) Scape not swollen, similar to female, 0.45-0.50 times UID (n=5, m=0.47); proportion of first and second flagellomeres together to scape 0.84-0.91 (n=5, m=0.88). (w) Fringe on S5 with curled hairs that surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside as long as apical width; hind femur with semiappressed hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella present, hairy.

Material studied. Holotype female from ARGENTINA: LA RIOJA: Illiar, M. Gómez (MACN). Following paratypes: ARGENTINA: SALTA: 1 M, Angastaco, 7-XII-1968, Willink and Stange (IML); 1 M, Rosario de la Frontera, II-1983, M. Fritz (MF); 1 F, La Viña, II-1984, M. Fritz

(MF). TUCUMAN: 1 F, La Puesta, 20-II-1970 (IML); 1 F, 11 km W Las Cejas, 5-V-1968, L. Stange (IML); 1 M, Amaicha del Valle, XII-11-1964, C. Porter (Porter). SANTIAGO DEL ESTERO: 1 F, 1 M, (MACN); 1 M, 30 km S Villa San Martín, XII-29-1975, R. M. Bohart (UCD); 6 F, 1 M, Los Tigres, 11-16-I-1970, R. Golbach (IML); 1 F, Colonia Dora, 15-26-XI-1979, C. M. Vardy (BMNH); 1 M, Termas de Río Hondo, 17-XI-1951 (MLP). CATAMARCA: 1 M, San Antonio, 6-II-1958, R. Golbach (IML); 1 M, Lavalle, 26-IV-1951, A. Ogloblin (MLP). CORDOBA: 1 F, (MACN); 1 M, 15-II-1945, on *Baccharis* (MLP). LA RIOJA: 2 F, 2 M, (AMNH); 4 M, La Rioja, Giacomelli (CU); 1 F, 1917 (CAS); 3 F, 2 M, same as holotype (MACN); 1 F, 6 M, Río Salado, 4-V-1955 (MLP); 1 M, Illiar, I-1935, M. Gómez (KU); 1 F, 2 M, Villa Unión, 12-XII-1971, Porter and Stange (IML); 1 M, 7 km S Villa Casana, 10-XII-1971, Porter and Stange (IML); 1 M, Patquía, 22-II-1978, Willink and Dominguez (IML).

Doeringiella oblonga sp. nov.
(Fig. 63)

This species is known from the male sex only. It can be distinguished by T1 having extensive pale pubescence that encloses a central oval black area (hence the specific name), the preoccipital carina absent near the angle, the fringe on S5 as well developed as that on S3-S4. The penis with a lamella forming a projection unites *oblonga* with *burmeisteri* and *cingillata*. The description is based on the holotype, with measurements of the paratype in parentheses.

Male. Length 10.2 mm (10.3); length of forewing 7.5 mm (7.6). (a) Integument black, antenna wholly black (holotype), following parts light red: base of mandible, tegula, first flagellomere (paratype), pronotal lobe and legs beyond coxae. Wings slightly infuscated, with dark apical band; veins brown. (b) Face and venter of thorax with long, appressed white hairs; hairs other than maculations short, white on thorax and legs, dark brown on metasoma. Propodeum with appressed white hairs on posterolateral angles; sternal fringes pale. (c) Maculations cream-colored, of short, appressed hairs; pronotal band interrupted medially; notaular spots large, contiguous, elongate, as long as tegula; posterior scutal, scutellar, metanotal and mesepisternal bands complete; patch before tegula; T1 with extensive pale maculation that encloses central oval dark area; T2-T6 with broad apical band (on T4-T5 briefly interrupted medially in paratype). (d) Middle of mesepisternum with punctures 0.03-0.035 mm, interspaces thin. (e) Upper sculptured band of metapostnotum finely punctured, shorter than metanotum. Propodeum at sides of metapostnotum bare, no punctures. (g) Paraocular and supra-antennal areas forming continuous depres-

sion. (h) Frontal carina keeled, beginning half ocellar diameter below anterior ocellus, surpassing lower level of sockets. (i) Paraocular carina surpassing lower tangent of anterior ocellus. (j) Preoccipital carina obliterated near angle. (l) Labrum 0.55 times as long as wide (0.54); denticles separated by 0.33 times labral length (0.32); upper tubercles strong, prolonged apicad by carina. (n) Longitudinal impression of scutellum present; axilla triangular with blunt projection, outer side convex. (o) Supraspiracular carina concave, prolonged along posterolateral angle of propodeum as low ridge. (s) Length of vein r 0.65 times base of second submarginal cell (0.75). (u) Proportion of LID to UID 0.83 (0.81); AOD to IAD 0.44 (0.45). (v) Scape not swollen, 0.46 times UID (0.47); proportion of first and second flagellomeres together to scape 0.81 (0.82); sub-basal angle present, section of plical surface on apical third flat. (w) Fringe on S5 with curled hairs that surpass posterior margin of sternite, as developed as fringes on S3-S4. (x) Middle femur with erect hairs on underside as long as apical width; hind femur with sparse, erect hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present, forming projection. Volsella present, hairy.

Material studied. Holotype male from ARGENTINA: CORDOBA: Depto. Calamuchita, El Sauce, XII-1938, M. J. Viana (MACN); paratype male from BUENOS AIRES: Gonzalez Catán, II-1952, J. Foerster (KU).

Doeringiella paranensis sp. nov.
(Figs. 31, 48, 56)

This species is closely allied to *archavaletai*. It is distinguished by the absence of a band on T1, the metasoma with pubescence other than maculations pale, the thorax and the face with extensive white hairs, the metanotal tuft pale, the preoccipital carina present behind ocelli, and the male scape as long as the basal 4.5 flagellomeres together. The name is from the biogeographic area where the species occurs. The description is based on the holotype, with measurements of the female paratype in parentheses.

Female. Length 16.5 mm (paratype 14.0); length of forewing 12.3 mm (10.5). (a) Integument black; center of mandible dark red; first flagellomere and legs beyond coxae brownish to black. Wings yellowish brown with dark apical band. (b) Hairs whitish, appressed around antennal sockets, short on clypeus and labrum, sparse on legs and thorax; hairs on metasoma other than maculations grayish, paler on sterna; metanotal tuft pale; long brown hairs on vertex, occipital region and propodeum, except a bunch of white hairs above supraspiracular carina. (c) Maculations on thorax of long, erect, whitish hairs partly intermixed with general pilosity; pronotal band

and notaular spots poorly defined; spot below pronotal lobe; posterior scutal band as lateral spot; maculations on metasoma of short appressed pale yellow hairs; T2-T4 with complete apical bands, no band on T1; T5 with hairs denser at sides. (d) Middle of mesepisternum with coarse punctures, diameter 0.05-0.06 mm, interspaces narrow. (e) Upper sculptured band of metapostnotum shorter than metanotum, rugose; longitudinal impression strong. Propodeum at sides of metapostnotum with strong punctures and hairs. (f) Proportion of LID to UID 0.81 (paratype 0.78); AOD to IAD 0.74 (0.74). (g-i) As in *archavaletai*. (j) Upper sector of preoccipital carina distinct only behind ocelli. (l) Labrum 0.64 times as long as wide (0.66); upper tubercles moderate; apical denticles separated by 0.32 times labral length (0.35); apical point and longitudinal carina present. (m) Scape 0.47 times UID (0.44); proportion of first and second flagellomeres together to scape 0.70 (0.77); sub-basal angle weak; longitudinal keel limiting plical surface; section of plical surface on apical third concave. (n-q) As in *archavaletai*, except pseudopygidial area 0.3 times as long as wide. (s) Length of vein r 0.85-1.0 times base of second submarginal cell.

Male. Length 13.0 mm; length of forewing 10.3 mm. (t) Color and vestiture similar to those of female, but white hairs on face and convex surface of scape; white hairs on thorax and legs denser; T2-T4 with yellow apical bands; sternal fringes brown. (u) Proportion of LID to UID 0.82; AOD to IAD 0.47. (v) Scape swollen, 0.62 times UID; as long as the basal 4.25 flagellomeres together; proportion of first and second flagellomeres together to scape 0.51; cavity wider than entrance hole. (w-y) As in *archavaletai*.

Material studied. Holotype female, ARGENTINA: MISIONES: Pto. Bemberg (MACN). Paratypes, 1 F, 1 M, BRAZIL: SANTA CATARINA: Lagoa, Florianopolis, I-XII-1959, P. D. Hurd Jr. (UFPR).

Doeringiella pilicornis sp. nov.
(Figs. 18, 40)

This species resembles *crinita* in coloration and size. It can be distinguished by the tuberculiform elevation between the antennal sockets (fig. 40), the preapical denticles of the labrum (fig. 18), the female S5 flat before the strongly bent apex and the erect hairs on the plical surface of the male scape (hence the specific name). The smallest specimens may be confused with *burmeisteri* and *chacoensis*, but the mesepisternal band, present in those species, is always absent in *pilicornis*.

Female. Length 7.4-10.2 mm (n=3, m=9.0, holotype 9.5); length of forewing 6.3-7.2 mm (n=3, m=6.6, holotype 6.3). (a-c) Coloration

and vestiture as described for *crinita*, except scutellar and metanotal bands complete. (d) Middle of mesepisternum with close, small punctures, diameter 0.02-0.025 mm, some scattered wider interspaces present. (e) Upper sculptured band of metapostnotum as wide as metanotum, finely punctured; longitudinal impression weak. Propodeum at sides of metapostnotum bare, no punctures. (f) Proportion of LID to UID 0.7-0.72 (n=3, m=0.71, holotype 0.72); AOD to IAD 0.74-0.78 (n=3, m=0.76, holotype 0.75). (g) Paraocular and supra-antennal areas forming continuous shallow depression. (h) Frontal carina beginning one ocellar diameter below anterior ocellus, reaching lower level of antennal sockets; elevation between sockets with sides convex, tuberculiform. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina complete. (l) Labrum 0.53-0.58 times as long as wide (n=3, m=0.56, holotype 0.58); apical denticles before thick rim, separated by 0.26-0.28 times labral length (n=3, m=0.27, holotype 0.28); no upper tubercles. (m) Scape 0.36-0.41 times UID (n=3, m=0.38, holotype 0.41); proportion of first and second flagellomeres together to scape 1.0-1.09 (n=3, m=1.04, holotype 1.0); sub-basal angle weak, section of plical surface on apical third convex. (n-o) As in *crinita*. (p) S5 flat with perpendicular sides and apex bent down. (q) T5 with basal central area of denser hairs forming a patch. Pseudopygidial area as long as apical width, trapezoidal. (s) Length of vein r 0.6-0.7 times base of second submarginal cell.

Male. Length 7.8-8.7 mm (n=2); length of forewing 6.2-6.4 mm. (t) Color and vestiture similar to those of female; T1-T6 with apical bands; in one specimen bands on T3-T5 interrupted medially. (u) Proportion of LID to UID 0.78-0.81; AOD to IAD 0.42. (v) Scape not swollen, 0.46-0.47 times UID; proportion of first and second flagellomeres together to scape 0.81-0.86; sub-basal angle strong; distal 2/3 of plical surface concave, with erect hairs as long as half apical diameter, opposite surface with appressed hairs. (w) Fringe on S5 of straight, sparse hairs that do not surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside longer than apical width; hind femur with erect hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella hairy.

Material studied. ARGENTINA: Holotype female, TUCUMAN, Los Puestos, Road to Río Hondo, 8-IV-1967, Terán and Willink (IML). Paratypes: SALTA: 1 F, La Viña, II-1985, M. Fritz (MF). TUCUMAN: 1 M, same data as holotype (IML). CATAMARCA: 1 M, Campo de

Pucará, 23-I-1973, J. L. Neff (CTMI). LA RIOJA: 1 F, Huanchín, M. Gómez (MACN).

Doeringiella potrerillensis (Jensen-Haarup)
(Fig. 19)

Epeolus bifasciatus Jörgensen, 1909: 226. Lectotype female, by present designation, from Argentina, Mendoza, Potrerillos, 27-XII-1907 (MLP, examined). Jörgensen, 1912a: 141, 1912b: 315. Preoccupied name.

Epeolus potrerillensis Jensen-Haarup, 1909: 653. New name for *bifasciatus* Jörgensen, not *E. bifasciatus* Cresson, 1864. Jörgensen, 1912a: 634; Schrottky, 1913: 265.

Epeolus bicinctus Friese, 1925: 35. Holotype female, by monotypy, from Argentina, Mendoza, 27-XII (ZMB, examined). Synonymy by Moure, 1954: 275.

Doeringiella (Orfilana) potrerillensis: Moure, 1954: 274-275.

Females of *potrerillensis* may be confused with *baeri*; both species have the same color pattern of general deep black vestiture with white maculations. *D. potrerillensis* lacks the pronotal band and the notaular spots, the flagellum has the last 2-3 segments black, the apical denticles of the labrum are separated by 0.20-0.24 times the labral length (fig. 19) and the scape of the male is not swollen.

Female. Length 8.0-11.5 mm ($n=7$, $m=10.2$); length of forewing 8.2-9.8 mm ($n=7$, $m=8.9$). (a) Integument black; center of mandible, labrum in part and pronotal lobe dark red; scape, pedicel, basal 7-8 flagellomeres, tegula and legs beyond coxae light red. Wing membrane and veins yellowish brown on basal half, darker towards apex. (b) Labrum with sparse white hairs, remainder of head and thorax with appressed, brown hairs, intermixed with long, erect, black ones; legs with white pubescence; metasomal pubescence other than maculations black; propodeum with dense, long, black hairs. (c) Maculations (apical bands on T1 and T2 only) of short, appressed, white hairs. (d) Thorax with coarse punctures, diameter on middle of mesepisternum 0.035-0.055 mm, interspaces narrow. (e) Upper sculptured band on metapostnotum finely punctured, shorter than metanotum; longitudinal sulcus distinct. Propodeum at sides of metapostnotum with strong punctures and long hairs. (f) Proportion of LID to UID 0.70-0.76 ($n=7$, $m=0.73$); AOD to IAD 0.61-0.71 ($n=7$, $m=0.67$). (g) Paraocular area between antennal socket and upper ocular third moderately swollen. (h) Frontal carina beginning close to anterior ocellus, slightly surpassing lower level of antennal sockets; elevation between sockets with sides concave. (i) Paraocular carina ending just below lower tangent of anterior ocellus. (j) Preoccipital carina complete. (l) La-

brum 0.60-0.68 times as long as wide ($n=7$, $m=0.65$); no upper tubercles; apical denticles separated by 0.18-0.24 times labral length ($n=7$, $m=0.20$); apical point present. (m) Scape 0.32-0.35 times UID ($n=7$, $m=0.34$); proportion of first and second flagellomeres together to scape 1.14-1.25 ($n=7$, $m=1.19$); sub-basal angle present; section of plical surface on apical third convex. (n) Longitudinal impression of scutellum weak; axilla triangular, produced as short tooth. (o) Supraspiracular carina strong, concave, prolonged along posterolateral angle of propodeum as low ridge. (p) Apex of S5 not bent down. (q) Base of T5 with short hairs denser on basal central area, but not forming a distinct patch. Pseudopygidial area as long as apical width. (s) Length of vein r 0.7-0.8 times base of second submarginal cell.

Male. Length 10-11 mm ($n=3$, $m=10.7$); length of forewing 9.2-9.8 mm ($n=3$, $m=9.4$). (t) White maculations more extensive than in female; pronotal band present, briefly interrupted medially; notaular spots united, forming continuous broad band; posterior scutal band as small lateral spot; patch on mesepisternum below pronotal lobe; hind coxa with dense patch; T1-T2 and T5-T6 with broad apical bands. Sternal fringes black. (u) Proportion of LID to UID 0.77-0.84 ($n=3$, $m=0.80$); AOD to IAD 0.40-0.43 ($n=3$, $m=0.42$). (v) Scape not swollen, 0.38-0.41 times UID ($n=3$, $m=0.40$); proportion of first and second flagellomeres together to scape 1.0-1.06 ($n=3$, $m=1.03$); subantennal angle strong, plical surface with erect hairs as long as half apical width of scape. (w) Fringe on S5 with long hairs surpassing posterior margin of sternum. (x) Underside of middle femur with erect hairs as long as apical width; hind femur with semiappressed hairs. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella hairy.

Material studied. ARGENTINA: JUJUY: 1 F, Rio Cincel, W of Abrapampa, 3500-3700 m, II-10-1970, L. Peña (AMNH); 4 F, 9 km S Humahuaca, XII-10-1975, R.M. Bohart (UCD). SALTA: 1 M, Yacochuya, Cafayate, 1950 m, Willink, Terán and Stange, Malaise trap (IML). TUCUMAN: 1 M, Amaicha del Valle, 17-I-1968, Golbach, Terán and Willink (IML). CATAMARCA: 1 F, Minas Capillitas, desert scrub site, 23-XII-1973, J. L. Neff, on *Larrea divaricata* (CTMI). SAN JUAN: 1 M, Leoncito, 25 km Calingasta, 2550 m, II-1966, Willink and Stange (IML). MENDOZA: 1 F, Potrerillos, 27-XII-1907, lectotype of *D. potrerillensis* (MLP); 1 F, Mendoza, 27-XII, holotype of *E. bicinctus* (ZMB).

Doeringiella similaris sp. nov.

This species is closely related to and sympatric with *simplicicornis*, but its range extends further southward to the province of Rio Negro. It is distinguished by the complete band on T2, the wings with dark apical band, the more extensive yellow hairs around the antennal sockets and minor differences in head proportions. The constancy of all these differences over a wide geographic range supports the recognition of *similaris* in spite of the lack of distinctive morphological features to separate it from *simplicicornis*. Males may be confused with *holmbergi*; see comments under that species.

Female. Length 8.5-12.0 mm ($n=8$, $m=10.5$, holotype 11.5); length of forewing 7.8-9.0 mm ($n=8$, $m=8.6$, holotype 8.5). (a-e) As in *simplicicornis* and *crassicornis*, but T1-T4 with complete apical bands, wings faintly infuscated with dark apical band. (f) Proportion of LID to UID 0.66-0.72 ($n=8$, $m=0.69$, holotype 0.66); AOD to IAD 0.57-0.63 ($n=8$, $m=0.61$, holotype 0.59). (g-j) As in *simplicicornis*. (l) Labrum 0.58-0.65 times as long as wide ($n=8$, $m=0.62$, holotype 0.60); upper tubercles present; apical denticles separated by 0.22-0.33 times labral length ($n=8$, $m=0.27$, holotype 0.33); apical point present. (m) Scape 0.36-0.37 times UID ($n=8$, $m=0.366$, holotype 0.37); proportion of first and second flagellomeres together to scape 1.0-1.14 ($n=8$, $m=1.07$, holotype 1.0); apical third of scape with plical surface flat to slightly concave. (n-s) As in *simplicicornis*, but hind basitarsus near base 1.3-1.5 times as wide as apex.

Male. Length 9.5-12.0 mm ($n=6$, $m=10.3$); length of forewing 8.1-8.7 mm ($n=6$, $m=8.4$). (t) Color and vestiture similar to those of female, T1-T6 with apical bands, on T5-T6 sometimes medially interrupted; sternal fringes pale. (u) Proportion of LID to UID 0.72-0.77 ($n=6$, $m=0.75$); AOD to IAD 0.38-0.45 ($n=6$, $m=0.42$). (v) Scape not swollen, similar to that of female, 0.40-0.45 times UID ($n=6$, $m=0.42$); proportion of first and second flagellomeres together to scape 0.90-0.97 ($n=6$, $m=0.92$). (w-y) As in *simplicicornis*.

Material studied. ARGENTINA: Holotype female, CORDOBA: El Sauce, Depto. Calamuchita, XII-1938, M. J. Viana (MACN). Paratypes: SALTA: 1 F, La Viña, III-1985, M. Fritz (MF); 1 M, 1 F, Rosario de Lerma, II-1983 and XII-1984, M. Fritz (MF); 1 F, Chicoana, XII-1985, M. Fritz (MF). TUCUMAN: 2 M, Tapia, 9-XI-1968 and 4-I-1976, A. Willink

(IML); 1 F, 1 M, 15 km N Tucumán, I-7-1985, R. M. Bohart (UCD). CATAMARCA: 2 F, 6 km N Belén, 1240 m, 1-15-II-1969 (IML); 1 F, Andalgalá, 19-XI-1944 (MLP); 1 F, Andalgalá, 7-XII-1971, D. J. Brothers (KU); 1 M, Andalgalá, 8-III-1973, J. L. Neff, on *Grindelia pulchella* (CTMI); 1 M, Campo de Pocara, XI-11-1951, J. Foerster (KU). LA RIOJA: 1 F, Chilecito, 2-5-II-1977, A. Willink (IML). CORDOBA: 1 F, Giacomelli (MACN). SANTA FE: 1 F, Vera, 16-XI-1945, A. Oglöblin (MLP). RIO NEGRO: 2 M, Luis Beltrán, Fritz (MF); 1 F, 1 M, Darwin, XII-1984, M. Fritz (MF); 1 F, Lamarque, I-1985 (MF).

Doeringiella simplicicornis sp. nov.

(Figs. 23, 28, 38, 58, 71)

This species and *similaris* look much like *crassicornis* in color, size and morphology. Females can be separated from *crassicornis* by the depressed paraocular area, the more parallel-sided hind basitarsus, reduction of the apical band on T2 to a lateral spot and the presence of bands on T3-T4. The male has the scape not swollen (the specific name refers to this condition).

Female. Length 9.8-12.2 mm ($n=8$, $m=10.7$, holotype 11.0); length of forewing 8.7-9.3 mm ($n=8$, $m=9.1$, holotype 9.0). (a) Integument black; center of mandible, labrum, scape, pedicel, pronotal lobe, tegula and legs beyond coxae dark red; first flagellomere and base of second light red. Wings evenly infuscated, veins dark brown. (b-e) As in *crassicornis*, but some pale hairs along preoccipital carina; notaular spots small, not extended posteriorly; T1 with complete apical band; T2 with apical band reduced to lateral spot; T3-T4 with apical bands complete or interrupted medially. (f) Proportion of LID to UID 0.69-0.72 ($n=8$, $m=0.71$, holotype 0.72); AOD to IAD 0.54-0.65 ($n=8$, $m=0.58$, holotype 0.54). (g) Paraocular and supra-antennal areas forming continuous distinct depression. (h) Frontal carina beginning immediately below anterior ocellus, ending in blunt sector surpassing lower level of antennal sockets; elevation between sockets with sides concave. (i) Paraocular carina ending above lower tangent of anterior ocellus. (j) Preoccipital carina distinct, complete. (l) Labrum 0.57-0.64 times as long as wide ($n=8$, $m=0.61$, holotype 0.58); upper tubercles present; apical denticles separated 0.28-0.38 times labral length ($n=8$, $m=0.33$, holotype 0.35); apical point present. (m) Scape 0.36-0.39 times UID ($n=8$, $m=0.38$, holotype 0.38); proportion of first and second flagellomeres together to scape 1.03-1.12 ($n=8$, $m=1.05$, holotype 1.03); apical third of scape with plical surface flat to slightly concave. (n-q) As in *crassicornis*, except pseudopygidial area 0.7-0.8 times as long as apical width. (r) Hind basitarsus near base 1.35-1.45 times as wide as

apex. (s) Length of vein r 0.8-1.0 times as long as base of second submarginal cell.

Male. Length 9.3-11.8 mm ($n=6$, $m=10.8$); length of forewing 8.8-10.0 mm ($n=6$, $m=9.4$). (t) Color and vestiture similar to those of female; T3-T6 with apical bands, sometimes not well developed; sternal fringes pale. (u) Proportion of LID to UID 0.78-0.81 ($n=6$, $m=0.79$); AOD to IAD 0.35-0.42 ($n=6$, $m=0.38$). (v) Scape not swollen, similar to that of female, 0.43-0.48 times UID ($n=6$, $m=0.45$); proportion of first and second flagellomeres together to scape 0.83-0.97 ($n=6$, $m=0.89$). (w) Fringe on S5 with straight hairs barely surpassing posterior margin of sternum. (x) Middle femur on underside with erect hairs nearly as long as apical width; hind femur with sparse erect hairs. (y) Dorsal edge of penis continuously sclerotized; without lamella. Volsella present, hairy.

Material studied. ARGENTINA: holotype female, SALTA: La Viña, I-1984, M. Fritz (MACN). Paratypes: SALTA: 2 F, 1 M, same data as holotype (MF, MACN); 3 F, La Viña, III-1985 and I-1987, M. Fritz (MF). CHACO: 1 M, Fuerte Esperanza, XI-1978, M. Fritz (MF). SANTIAGO DEL ESTERO: 3 F, Los Tigres, 11-16-XI-1970, R. Golbach (IML); 1 M, Tintina, 21-II-1920 (CU). CATAMARCA: 1 M, Quebrada La Cébila, km 30, 16-I-1960, A. Willink (IML). LA RIOJA: 2 M, Iliar, 30-X-1928, M. Gómez (KU). CORDOBA: 1 F, Giacomelli col. (MACN); 1 F, Yacanto, Depto. San Javier, I-1946, A. Bachmann (MACN).

Doeringiella singularis (Friese) comb. nov.
(Figs. 2, 6, 13, 33)

Epeolus singularis Friese, 1908: 87. Holotype female, by monotypy, from Argentina, Tucumán, 2000 m (ZMB, examined). Schrotky, 1913: 265.

Epeolus speciosus: Jörgensen, 1909: 219 (in part, misidentification).

Epeolus baeri: Jörgensen, 1912a: 140-141, 1912b: 315 (misidentification).

Doeringiella (Orfilana) martinezi Moure, 1954: 271-274. Lectotype female, by present designation, from Argentina, Buenos Aires, Dto. Puan, Felipe Sola, A. Martínez (UFPR, examined). *Synon. nov.*

There is only one female preserved in Berlin with Friese's original labels and indicated as type; it agrees with the original description except in size, it is 10.5 mm long instead of 9.5 mm as mentioned by Friese; I assume that this specimen is the holotype.

This species can be distinguished by its strong, laminate preoccipital carina, the propodeum around the metapostnotum with punctures bearing small hairs, the female S5 with the apex bent down, and the extensive cream-colored maculations over the whole body. The apical band on T1 is usually broadly expanded laterally; this is not

the case in some specimens from Salta, Catamarca and La Rioja, but they agree in all other respects.

Female. Length 7.7-11.5 mm ($n=10$, $m=9.4$, holotype 10.5); length of forewing 6.0-8.5 mm ($n=10$, $m=7.3$, holotype 8.5). (a) Integument black except the following light reddish: labrum, mandibles, scape, pedicel, first flagellomere, pronotal lobe, tegula and most of legs except base of coxae. Wings hyaline with wide apical dark band. (b) Hairs around antennal sockets yellow; face, labrum and coxae with short, white hairs; vertex and occipital area with erect, brown hairs; metanotal tuft light brown, darker than maculations; posterolateral angles of propodeum, thorax and metasoma with vestiture other than maculations short, dark brown to black. (c) Maculations of short, appressed, white to cream-colored hairs; pronotal band complete; notaular spots united along median line forming single patch; posterior scutal band complete, briefly extended forward in middle; mesepisternal band as small spot below pronotal lobe and narrow band from scrobe to base of coxa; scutellar and metanotal bands complete; T1-T4 with apical bands, on T1 laterally expanded in holotype and most other specimens; T5 with lateral band. (d) Middle of mesepisternum with punctures 0.025-0.035 mm in diameter, separated by approximately one-fourth of those diameters, but also with some scattered wider interspaces; scutum and scutellum with similar punctation. (e) Metapostnotum with upper rugose band narrower than metanotum, finely sculptured. Propodeum at sides of metapostnotum with punctures bearing small hairs (fig. 2). (f) Proportion of LID to UID 0.68-0.73 ($n=10$, $m=0.71$, holotype 0.72); AOD to IAD 0.63-0.70 ($n=10$, $m=0.66$, holotype 0.64). (g) Supra-antennal and paraocular areas forming continuous depression. (h) Frontal carina keeled, sharp, beginning one ocellar diameter below anterior ocellus, barely surpassing lower level of antennal sockets; elevation between sockets with sides straight. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina distinct, complete, upper sector laminate, angle strong. (l) Labrum 0.54-0.66 times as long as wide ($n=10$, $m=0.60$, holotype 0.54), with central longitudinal impression; no tubercles or longitudinal carina; apical denticles separated by 0.21-0.40 times labral length ($n=10$, $m=0.28$, holotype 0.40); apical point small or absent. (m) Scape 0.34-0.37 times UID ($n=10$, $m=0.35$, holotype 0.34); proportion of first and second flagellomeres together to scape 1.09-1.16 ($n=10$, $m=1.11$, holotype 1.09). (n) Scutellum moderately bigibbous; axilla robust, briefly produced, outer side convex. (o) Spiracular carina strong, concave, continued along postero-lateral angle of propodeum. (p) S5 sharply bent up at sides, apex bent down. (q) T5 with short hairs denser on basal central area, not forming definite patch. Pseudopygidial area trapezoidal, 0.8-0.9 as long

as apical width. (s) Length of vein r 0.74-0.81 times base of second submarginal cell.

Male. Length 7.7-10.0 mm ($n=6$, $m=9.0$); length of forewing 6.8-8.4 mm ($n=6$, $m=7.6$). (t) Color and vestiture similar to those of female, face with silvery hairs, T1-T6 with apical bands, those on T4-T6 sometimes interrupted medially; sternal fringes pale. (u) Proportion of LID to UID 0.76-0.79 ($n=6$, $m=0.78$); AOD to IAD 0.45-0.48 ($n=6$, $m=0.46$). (v) Scape not swollen, similar to that of female, 0.39-0.42 times UID ($n=6$, $m=0.41$); proportion of first and second flagellomeres together to scape 0.88-1.0 ($n=6$, $m=0.94$). (w) Fringe on S5 with long hairs that surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside shorter than apical width; hind femur with semi-appressed hairs on basal 1/3 to 2/3. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella hairy.

Material studied. ARGENTINA: SALTA: 2 F, Yacochuya, 9 km NW Cafayate, 23-26-IV-1970, Porter and Stange (IML); 1 M, Rosario de Lerma, XI-1984, M. Fritz (MF). TUCUMAN: 1 F, 2000 m, holotype of *singularis* (ZMB). CATAMARCA: 2 M, 6 km N Belén, 1240 m, 1-15-XII-1969, Malaise trap (IML). LA RIOJA: 1 M, San Francisco (MACN); 1 M, Patquía, III-1951, Martínez (UFPR). CORDOBA: 1 F, Depto. Calamuchita, El Sauce, XII-1938, M. J. Viana (MACN). MENDOZA: 1 F, Uspallata (MACN). LA PAMPA: 1 F, Salitral Levalle, 11-I-1968, L. Stange (IML); 2 F, 100 km N Rio Colorado, I-1985, M. Fritz (MF). BUENOS AIRES: 1 F lectotype and 2 M paralectotypes of *martinezi*, Felipe Sola, Dpto. Puan, A. Martínez (UFPR); 1 F, 12 M, Felipe Sola, Depto. Puan, XI-1951, XII-1951 and II-1952, A. Martínez (KU); 2 M, same data, III-1948 (MLP); 1 M, 30 km SW Villa Iris, 12-XI-1946, Martínez (MLP); 2 M, Tornquist, 500 m, XII-1954, F. H. Walz (KU). RIO NEGRO: 2 M, Norquincó, XI-1952 (KU); 1 M, Conesa, XII-1954, F. H. Walz (KU); 1 F, 4 M, Rio Colorado (MLP); 1 M, Rio Colorado, XI-1952 (KU); 1 M, Pomona, XII-1984, M. Fritz (MF); 5 F, Lamarque, I-1985, M. Fritz (MF); 1 F, San Antonio Oeste, Foerster (KU). NEUQUEN: 1 F, Zapala, III-1955, Foerster (KU).

Doeringiella speciosa (Friese)

Epeolus speciosus Friese, 1908: 84-85. Lectotype female, by present designation, from Argentina, Mendoza, 13-IV-1907, Jensen (ZMB, examined). Jensen-Haarup, 1908: 107; Jörgensen, 1909: 219 (in part), 1912a: 140, 1912b: 315; Schrotky, 1913: 265.

Doeringiella (Orfilana) speciosa: Moure, 1954: 271.

This species is readily distinguished by its red scutellum clothed with short, black hairs. It can be separated from the other two species with red scutella (*guttata* and *centuncula*) by the shape of the

female pseudopygidial area (which is trapezoidal, similar to that of *singularis*, fig. 2), the complete preoccipital carina, the lateral spot on T5 of the female, the unswollen male scape and the white apical bands on T1-T6 of the male.

Female. Length 7.7-10.8 mm ($n=9$, $m=9.5$, lectotype 9.0); length of forewing 6.5-8.2 mm ($n=9$, $m=7.2$, lectotype 7.5). (a) Integument black except the following red: scape, pedicel, first flagellomere, tegula, scutellum, axilla in some specimens including lectotype, legs beyond trochanter. Wings weakly infuscated with wide, dark apical band. (b) Hairs on head, thorax and propodeum brown to black, including metanotal tuft; legs with short white hairs; metasoma with short pubescence other than maculations black. (c) Maculations of short, appressed, white hairs; pronotal band briefly interrupted medially, not covering pronotal lobes; notaular spots somewhat square, outer tip extended posteriorly; posterior scutal band reduced to lateral spot, no other maculations on thorax; T1 with apical band laterally expanded; T2 with apical band; T5 with lateral band. (d) Middle of mesepisternum with punctures 0.035-0.045 mm in diameter, confluent, interspaces narrow; punctures on scutum and scutellum smaller with wider interspaces. (e) Metapostnotum with upper rugose band narrower than metanotum. Propodeum at sides of metapostnotum without punctures, finely transversely striated. (f) Proportion of LID to UID 0.71-0.76 ($n=9$, $m=0.73$, lectotype 0.74); AOD to IAD 0.61-0.70 ($n=9$, $m=0.68$, lectotype 0.61). (g) Supra-antennal and paraocular areas forming continuous depression. (h) Frontal carina keeled, beginning half ocellar diameter below anterior ocellus, barely surpassing lower level of antennal sockets; elevation between sockets with sides straight. (i) Paraocular carina reaching lower tangent of anterior ocellus. (j) Preoccipital carina complete but not strong, angle low. (l) Labrum 0.56-0.62 times as long as wide ($n=9$, $m=0.59$, lectotype 0.62); no upper tubercles nor longitudinal carina; apical third bent forward; apical denticles separated by 0.21-0.28 times labral length ($n=9$, $m=0.25$, lectotype 0.28); small apical point present. (m) Scape 0.36-0.38 times UID ($n=9$, $m=0.37$, lectotype 0.37); proportion of first and second flagellomeres together to scape 1.08-1.17 ($n=9$, $m=1.13$, lectotype 1.17); sub-basal angle weak. (n) Scutellum moderately bigibbous; axilla triangular, shortly produced, outer side straight. (o) Spiracular carina short, restricted to top of spiracle. (p) S5 with apex bent down, ventral surface more or less flat and sides sharply bent up. (q) T5 with basal patch of hairs. Pseudopygidial area trapezoidal, 0.75-0.85 as long as apical width. (s) Length of vein r 0.60-0.65 times base of second submarginal cell.

Male. Length 9.5-12.5 mm ($n=3$, $m=10.9$); length of forewing 7.4-8.6 mm ($n=3$, $m=7.9$).

(t) Color and vestiture similar to those of female, but face with white hairs, T1-T6 with apical bands, sternal fringes black. (u) Proportion of LID to UID 0.76-0.81 ($n=3$, $m=0.78$); AOD to IAD 0.38-0.44 ($n=3$, $m=0.42$). (v) Scape not swollen, similar to that of female, 0.40-0.43 times UID ($n=3$, $m=0.42$); proportion of first and second flagellomeres together to scape 0.97-0.98 ($n=2$); plical surface with erect hairs as long as half apical diameter of pedicel. (w) Fringe on S5 with long, apically curled hairs that surpass posterior margin of sternum. (x) Middle femur with erect hairs on underside shorter than apical width; hind femur with short appressed hairs on basal 1/2 to 2/3. (y) Basal half of penis only partly sclerotized dorsally; lamella present. Volsella present, hairy.

Material studied. ARGENTINA: LA RIOJA: 1 F, Jagüe, 9-III-1979 (IML). CÓRDOBA: 1 F, El Sauce, Depto. Calamuchita, II-1953, M. J. Viana (MACN); 1 F, Cordoba (MACN); 1 F, 8 km La Cumbre, 26-II-1966, Willink and Weyrauch (IML). SAN LUIS: 1 F, Potrero de Los Funes (MACN). MENDOZA: 1 F lectotype, Mendoza, 13-IV-1907, Jensen (ZMB); 1 M, paralectotype, 18-IV-1905, on *Grindelia* (ZMB); 2 M, Cacheuta (MACN); RIO NEGRO: 1 F, 1 M, Rio Colorado, III-1958, A. Ogloblin (MLP); 2 F, Paso Flores, III-1963 (KU, MACN).

Doeringiella tricolor sp. nov.

(Fig. 61)

Doeringiella tricolor Moure, in litteris (labels on specimens, UFPR, KU).

This species is closely related to *gayi*. It may be recognized by its whitish maculations, the apical band on T1 transverse or slightly expanded laterally, the vestiture on the mesepisternum of short, appressed hairs and the flagellum mostly black. The two species are allopatric to a large extent, but both are recorded from the provinces of Neuquén and Chubut in Argentina. To judge by the localities, *tricolor* inhabits more xeric environments.

Female. Length 9.3-12.0 mm ($n=8$, $m=10.3$, holotype 9.5); length of forewing 7.0-9.0 mm ($n=8$, $m=7.7$, holotype 7.3). (a) Integument black; center of mandible, tegula and first flagellomere red; some specimens also red on pronotal lobe, part of labrum, scape and pedicel; legs vary from extensively blackish to light red beyond coxae (reddish beyond tibiae in holotype). Wings weakly infuscated with dark apical band. (b) Hairs on head mostly brown, sometimes white on outer side of antennal socket; legs and thorax with short hairs white to grayish; propodeum with hairs white to brown, along postero-lateral angles

usually white; metasoma with hairs other than maculations dark brown on terga, grayish on sterna. (c) Maculations white, hairs semiappressed on thorax, short and appressed on metasoma; pronotal band interrupted medially; notaular spots slightly separated; posterior scutal and metanotal bands complete; scutellar band a central spot; a patch basal to tegula; mesepisternal band interrupted behind level of pronotal lobe; T1-T4 with apical bands complete or briefly interrupted; T1 in some specimens expanded laterally; T5 with band laterally. (d) Middle of mesepisternum with punctures 0.04-0.05 mm in diameter, interspaces 1/5 to 1/3 of those diameters, but some wider interspaces present. (e) Upper sculptured band of metapostnotum narrower than metanotum, punctured; longitudinal impression distinct. Propodeum at sides of metapostnotum with punctures and hairs. (f) Proportion of LID to UID 0.70-0.74 ($n=8$, $m=0.72$, holotype 0.70); AOD to IAD 0.52-0.62 ($n=8$, $m=0.58$, holotype 0.62). (g-j) As in *gayi*, except paraocular carina reaching lower tangent of anterior ocellus. (l) Labrum 0.60-0.65 times as long as wide ($n=8$, $m=0.63$, holotype 0.63); upper tubercles present, moderate; apical denticles separated by 0.26-0.35 times labral length ($n=8$, $m=0.29$, holotype 0.27). (m) Scape 0.32-0.37 times UID ($n=8$, $m=0.35$, holotype 0.34); subbasal angle weak; proportion of first and second flagellomeres together to scape 1.0-1.10 ($n=8$, $m=1.06$, holotype 1.07). (n-q) As in *gayi*. (s) Length of vein r 0.8-0.9 times base of second submarginal cell.

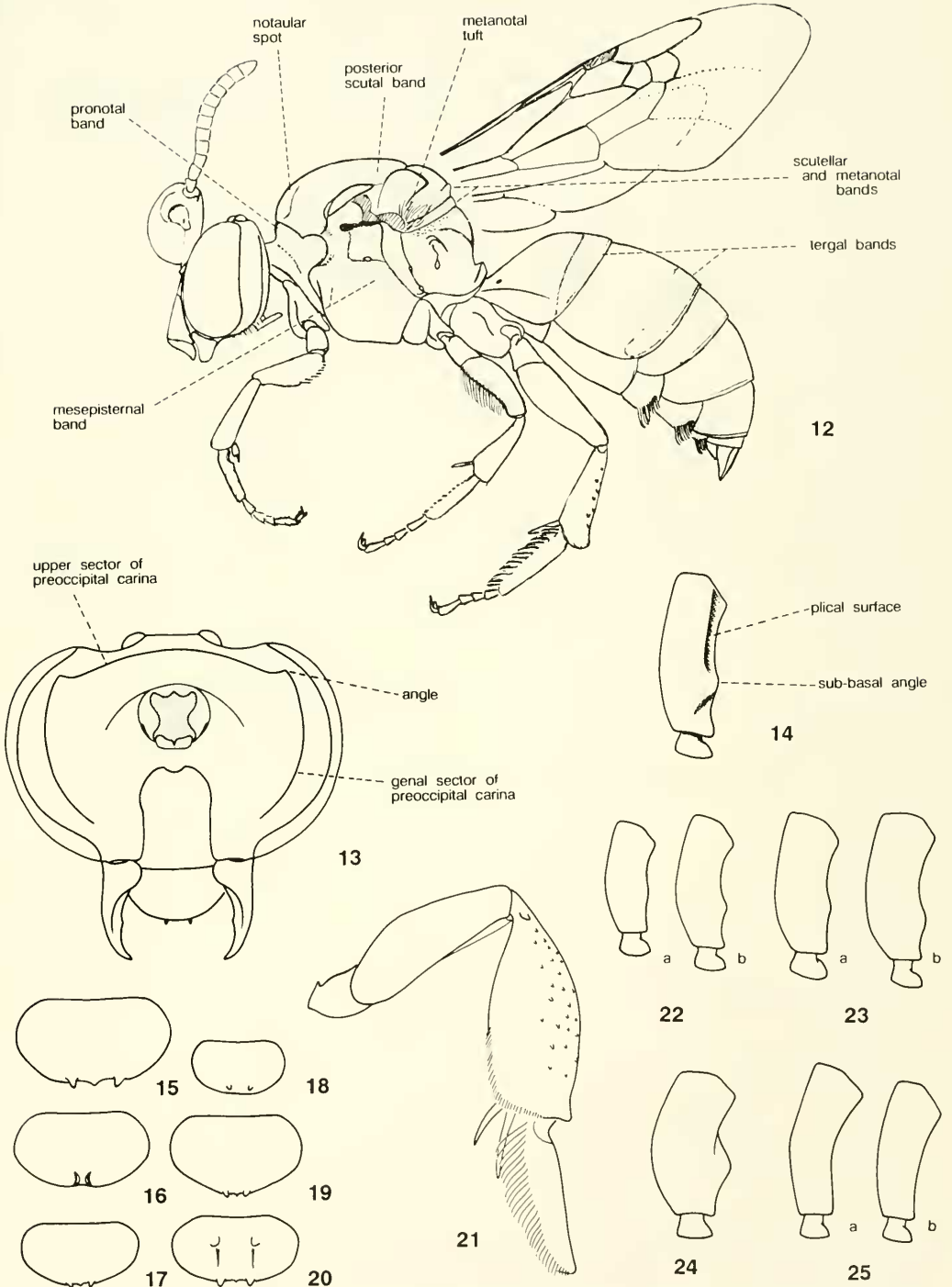
Male. Length 7.6-10.0 mm ($n=4$, $m=9.1$); length of forewing 7.6-8.2 mm ($n=4$, $m=7.9$). (t) Color and vestiture similar to those of female, but white hairs more extended, face wholly covered, notaular spots confluent with anterolateral patches of scutum; T1-T6 with apical bands, on T6 broadly interrupted; sternal fringes pale. (u) Proportion of LID to UID 0.78-0.80 ($n=4$, $m=0.79$); AOD to IAD 0.38-0.48 ($n=4$, $m=0.43$). (v) Scape not swollen, similar to female, 0.38-0.40 times UID ($n=4$, $m=0.39$); proportion of first and second flagellomeres together to scape 0.93-1.0 ($n=4$, $m=0.96$). (w-y) As in *gayi*.

Material studied. ARGENTINA: Holotype female, CHUBUT: Pingüinera, 30 km S Camarones, 18-I-1977, L. Stange (IML). Paratypes: MENDOZA: 1 F, 1 M, 60 km S Bardas Blancas, 19-I-1975, Willink and Claps (IML); 1 F, above Uspallata, 1940 m, 6-XII-1979, C. and M. Vardy (BMNH); 1 F, Mina Aida, Depto. Las Heras, A. Stevenin (MACN). BUENOS AIRES: 2 F,

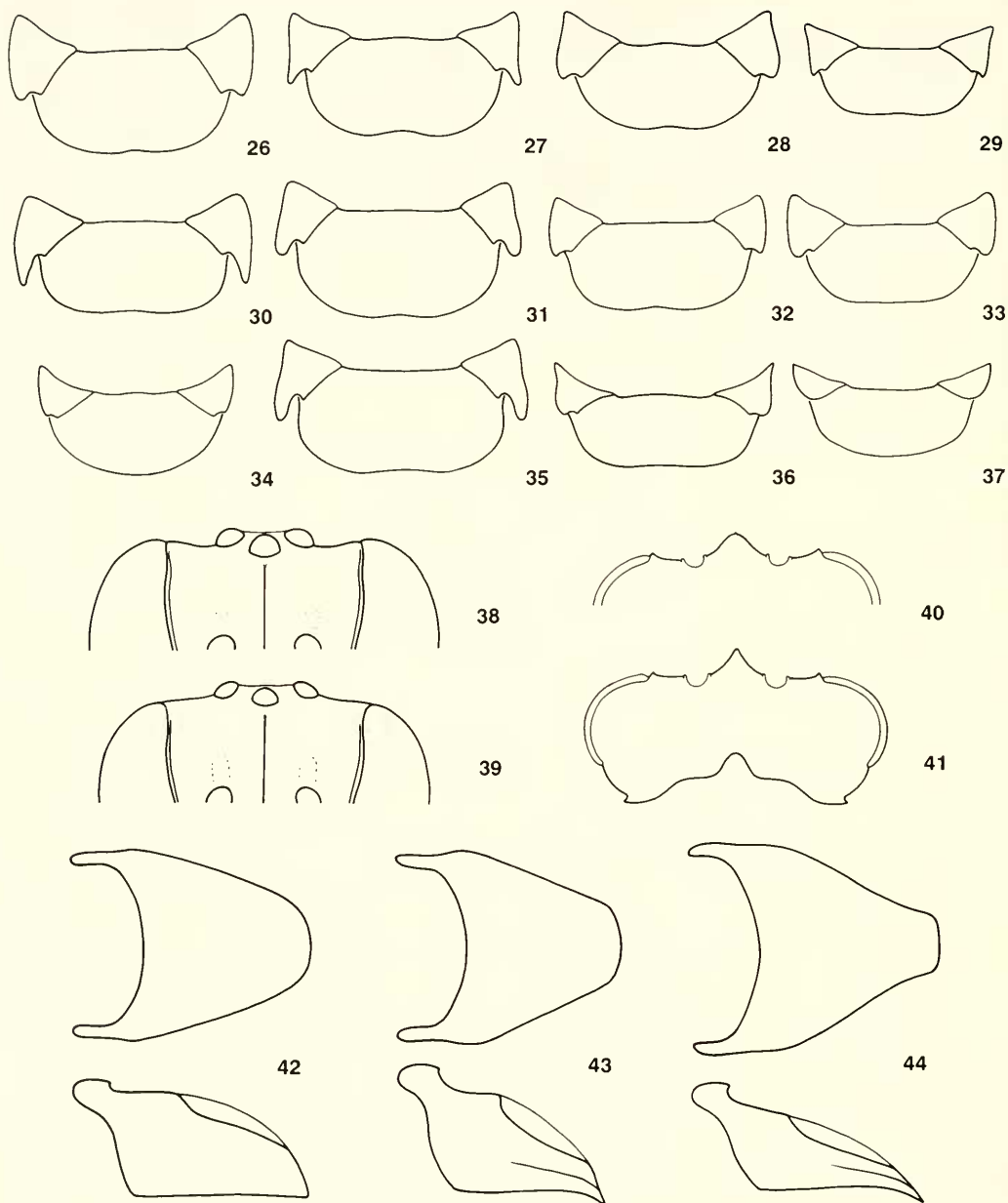
Tornquist, Sierra de La Ventana, 500 m, XII-1954, F.H. Walz (KU, UFPR). NEUQUEN: 1 F, Collón Curá, XII-1955, A. Giai (MACN). RIO NEGRO: 2 F, Lamarque, XII-1984, M. Fritz (MF); 1 M, Darwin, XII-1984, M. Fritz (MF). CHUBUT: 3 F, 1 M, same data as holotype (IML, KU); 1 F, Dique Florentino Ameghino, 31-I-1975, A. Willink (IML); 1 F, Puerto Pirámides, 14-I-1977, L. Stange (IML); 1 M, Península Valdez, Punta Norte, 15-I-1977, L. Stange (IML).

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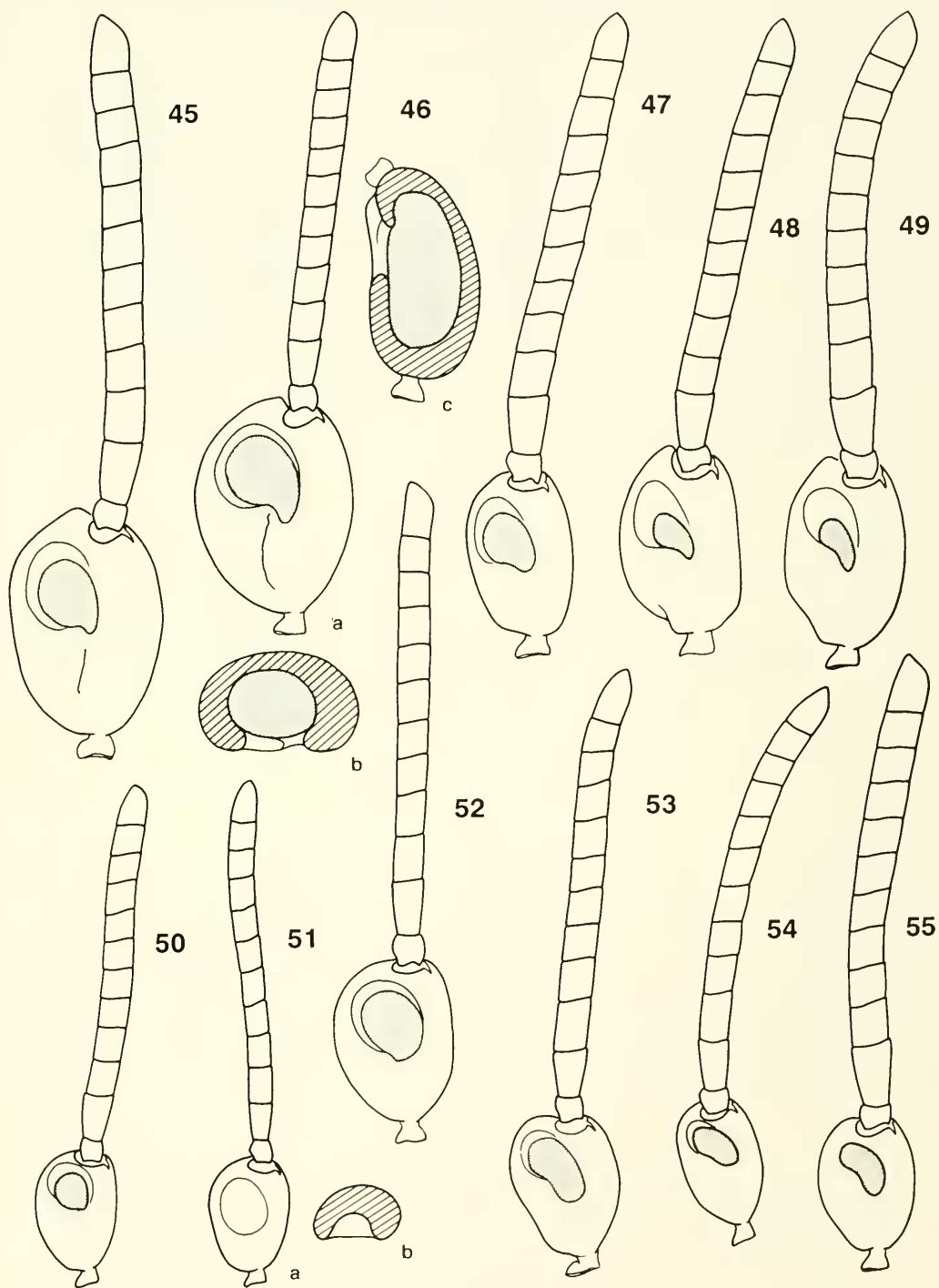
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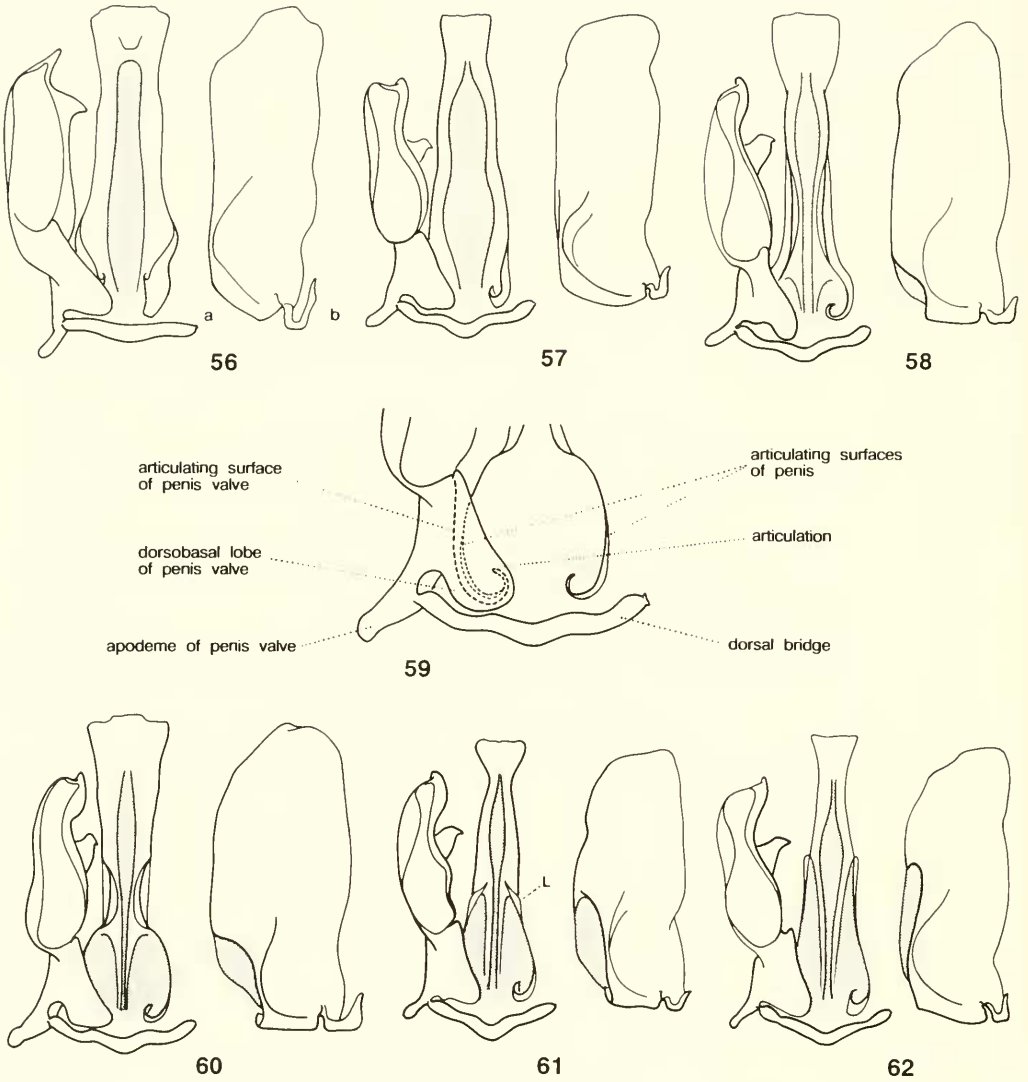
FIGS. 12-25. 12, *Doeringiella bizonata*, maculation pattern. 13, *D. singularis*, posterior view of head. 14, *D. bipunctata*, scape of female. 15, *D. gigas*, labrum. 16, *D. baeri*, labrum. 17, *D. crinita*, labrum. 18, *D. pilicornis*, labrum. 19, *D. potrerillensis*, labrum. 20, *D. gayi*, labrum. 21, *D. crassipes*, posterior leg showing swollen tibia. 22, *D. guttata*; a, scape of female; b, scape of male. 23, *D. simplicicornis*; a, scape of female; b, scape of male. 24, *D. angulicornis*, scape of male. 25, *D. joergenseni*; a, scape of male; b, scape of female.



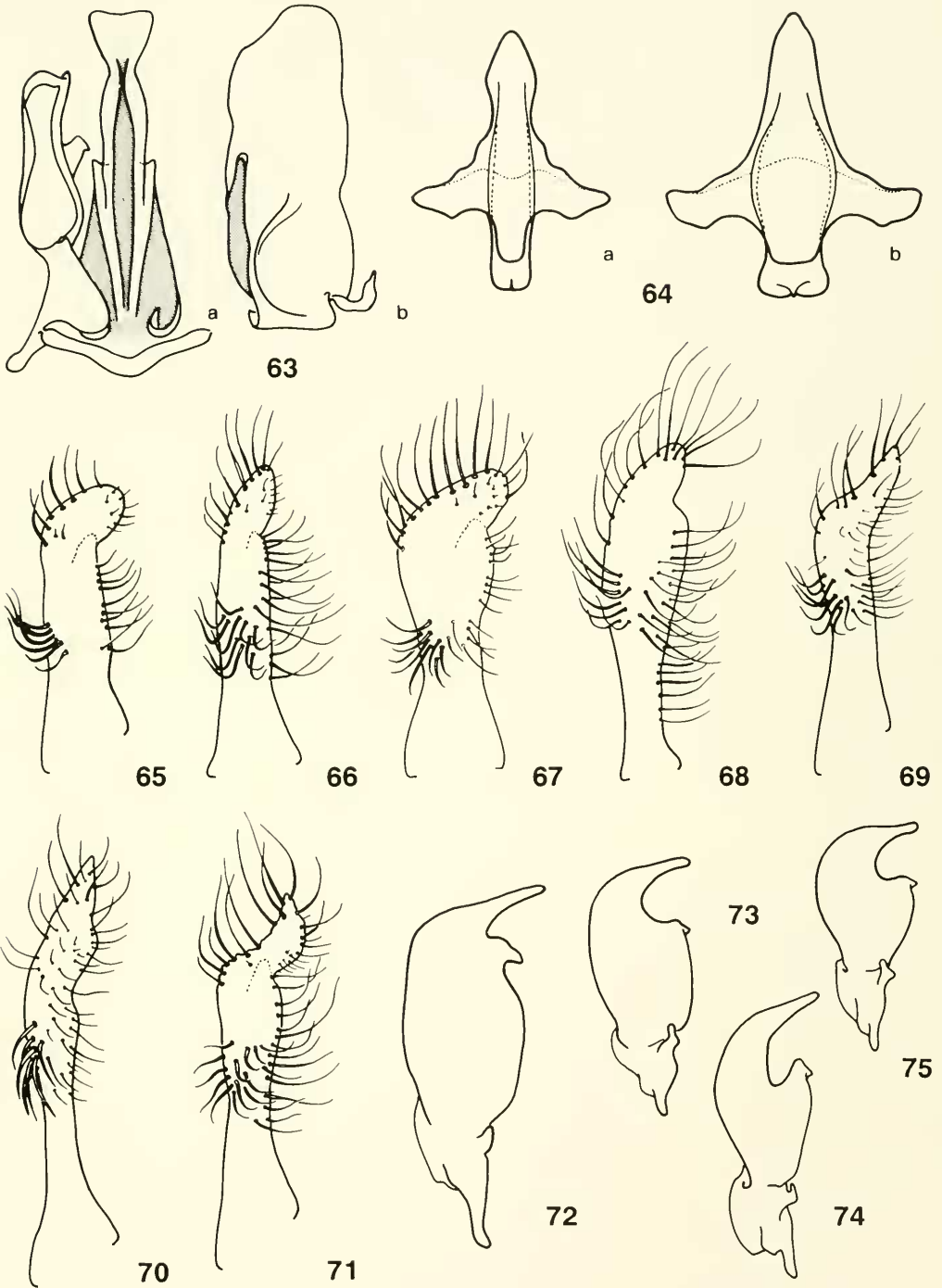
FIGS. 26-44. 26, *Doeringiella bizonata*, scutellum. 27, *D. gigas*, scutellum. 28, *D. simplicicornis*, scutellum. 29, *D. guttata*, scutellum. 30, *D. bipunctata*, scutellum. 31, *D. paranensis*, scutellum. 32, *D. crassicornis*, scutellum. 33, *D. singularis*, scutellum. 34, *D. oblata*, scutellum. 35, *D. arechavaletai*, scutellum. 36, *D. centuncula*, scutellum. 37, *D. hebes*, scutellum. 38, *D. simplicicornis*, frontal view of female head. 39, *D. crassicornis*, same. 40, *D. pilicornis*, cross-section of female head at level of antennal bases. 41, *D. crinita*, same. 42, *D. crassicornis*, S5 of female, ventral and lateral views. 43, *D. gayi*, same. 44, *D. centuncula*, same.



FIGS. 45-55, antenna of males. 45, *Doeringiella arechavaletai*. 46, *D. bizonata*; a, antenna; b, transverse section of scape; c, longitudinal section of scape. 47, *D. gigas*. 48, *D. paranensis*. 49, *D. cochabambina*. 50, *D. centuncula*. 51, *D. indecisa*; a, antenna; b, transverse section of scape. 52, *D. bipunctata*. 53, *D. crassicornis*. 54, *D. coelicera*. 55, *D. baeri*.



FIGS. 56-62. a, dorsal view of aedeagus (left penis valve omitted); b, lateral view of penis. 56, *Doeringiella paranensis*. 57, *D. holmbergi*. 58, *D. simplicicornis*. 59, detail of articulating surfaces of penis and penis valves in *D. baeri*. 60, *D. baeri*. 61, *D. tricolor*. 62, *D. indecisa*.



FIGS. 63-75. 63, *Doeringiella oblonga*; a, dorsal view of aedeagus (left penis valve omitted); b, lateral view of penis. 64, S8 of male; a, *D. crinita*; b, *D. gigas*. 65, *D. burmeisteri*, gonostylus. 66, *D. holmbergi*, gonostylus. 67, *D. baeri*, gonostylus. 68, *D. bizonata*, gonostylus. 69, *D. oblata*, gonostylus. 70, *D. joergenseni*, gonostylus. 71, *D. simplicicornis*, gonostylus. 72, *D. arechavaletai*, lateral view of penis valve. 73, *D. bizonata*, lateral view of penis valve. 74, *D. joergenseni*, lateral view of penis valve. 75, *D. holmbergi*, lateral view of penis valve.